

Organizational Learning as A Dynamic Sociological Construct: Theory and Research

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Abstract

With the advent of concepts such as punctuated equilibrium, chaos, and systems thinking from the hard sciences, and their respective implications for the social sciences, we must consider change to be more than performance; it requires us to examine both the organization's ability to perform and their collective ability to learn. This perspective necessitates the use of a sociological paradigm which allows for a better understanding of the dynamic and complex nature of organizational learning. The organizational learning systems model discussed in this essay contains four subsystems each responsible for carrying out vital functions for the organizational learning system to adapt to its environment. Relationships among the subsystems is established through the use of input/output variables labeled as interchange media: new information, goal referenced knowledge, structuring, and sense making. These interchange media are products of the functional subsystems of the organizational learning system and are manifested in traditional and measurable dynamic variables.

Qualitative data is used to provide illustrative case examples. The paper concludes with implications for the systems modeling of organizational change as a function of both performance and learning.

Organizational Learning as a Dynamic Sociological Construct: Theory and Research.

Understanding the dynamics of human activity and change in organizations has been primarily focused on the effective performance of the collective. Until recently, little effort has been directed at understanding organizational dynamics and change from a collective learning perspective. This paper begins with a brief review of the organizational learning theory and research and presents a qualitative organizational learning model. Results from two field studies are used to illustrate the application of the model which in turn leads to implications for organizational learning "patterns", their role in organizational change, and their potential for systems modeling.

Organizational Learning

The discussion of organizational learning as a serious concept associated with organizational theory has been well established for more than forty years (Daft and Huber, 1987). The more popular literature for managers is now reflecting the need for organizational learning. Keirnam (1993) has placed organizational learning at the top of his list of seven core elements of strategic architecture and has made it a managerial imperative:

"Propelled by the competitive exigencies of speed, global responsiveness, and the need to innovate constantly or perish, and enabled by new information technologies, learning will become the only viable alternative to corporate extinction" (p.9).

A great deal of interest in learning processes of organizations has been generated by Peter Senge's work with systems thinking (Senge, 1990). In the same context, Nonaka (1991) provides additional examples as he describes the knowledge-creating company as one that is recreating itself and everyone in it continually. Although these popular works have highlighted the systemic nature of the learning organization, their unit of analysis remains primarily the individual, thus providing little detail as to the theoretical basis for collective learning.

During the mid-1980s the organizational learning literature, in an effort to define the construct, took a descriptive approach to classification. Shrivastava (1983) summarized four "approaches" or views of organizational learning: Adaptive learning - adjusting goals to meet environmental change; Assumption sharing - actions result from shared values; Development of knowledge - knowledge is created in the process of comparing action with outcome; and Institutional experience - learning through experience and tradition. Shrivastava's review clearly sets the stage for the consideration of organizational learning as a complex social phenomena with a heavy dependence on cultural variables, action orientation, and the linking of organizational process with its outcomes and its environment.

Fiol and Lyles (1985) dichotomized the literature into an "either - or" framework in which organizational learning was defined in terms of either cognitive changes or behavioral changes. When considered as a separate function, only the cognitive change was seen as learning. It had the characteristics of relating action to process through shared schemes. The behavioral changes were seen as adaptation. These actions were classified as incremental in nature and much more a response to short-term environmental fluctuations. Although little insight was provided as to the interrelationship between learning and adaptation, this work presented a view of organizational learning as a multi-dimensional and complex set of actions.

Daft and Huber (1987) viewed organizational learning from two basic perspectives: the systems-structural perspective and the interpretive perspective. Their constructs were primarily concerned with the acquisition, distribution and interpretation of information from the environment. Although much of their work was oriented toward the communication of information and media construction, their identification of the need for organizations to develop internal mechanisms for the distribution and interpretation of information as well as the interface mechanism with the environment emphasizes the systemic nature of the organizational learning process. They applied

their constructs to an empirical case study of a failed organization with the conclusion: "American La France failed because it was not designed to learn, yet it existed in an environment in which it needed learning and adaptation in order to survive" (p. 29).

More detailed and specific discussions are offered by other authors. Variables that relate organizational learning and the environment (Hedberg, 1981), organizational transformation and learning cycles (Lundberg, 1989) and organizational memory retrieval and storage (Walsh, 1991) have contributed to our ability to postulate the organizational learning process. Huber (1991) suggests an organizational learning model as being described by four constructs: Knowledge Acquisition, Information Distribution, Information Interpretation, and Organizational Memory. His synthesis reflects a move toward interactive systems within the organizational learning construct.

It still remains that little theory exists to aid in explaining the relations between the constructs, and most authors end their review or discussion by calling for more empirical data and/or citing the need to operationalize the concepts associated with organizational learning so that they might be more useful in practice. Before turning to a model of organizational learning, I will briefly discuss the assumptions I make concerning systems and the dynamic nature of change in a social system.

Systems Dynamics and Change

The premise of this paper is that organizational learning is a subsystem of the general system of actions of the collective. Along with the performance subsystem, it enables the collective to evolve in a continual environmental flux of simultaneous order and disorder. This flux has been characterized as "change", not in the sense of a planned change, but rather in the sense of unpredictable breaks in the system's inertia referred to by Gersick as "punctuated equilibrium" (1991). This change occurs through patterns of performance and learning by the collective. The model of organizational learning developed in this paper is based on a set of assumptions concerning systems dynamics, social systems, chaos, and change.

Systems thinking is a key concept associated with organizational learning (Senge, 1990). Many managers and practitioners view systems thinking as characterized by goals, initial conditions, levels and rates that can be manipulated and optimized in the search for solutions to well defined problems (Forrester, 1961; Wolstenholme, 1990). This representation of real situations is often referred to as "hard" systems thinking. The application of systems thinking to more generalized, less defined situations is referred to as "soft" systems thinking and is more suited to the description of social phenomena in which multiple realities may exist. These systems are seen as appreciative systems (Vickers, 1972). Checkland describes this soft tradition as

"... regarding system models as models relevant to arguing about the world, not models of the world; this leads to 'learning' replacing 'optimizing' or 'satisfying'; this tradition talks the language of 'issues' and 'accommodations' rather than 'solutions'." (1985, p. 765).

It is in this more general social systems frame of reference that organizational learning models provide understanding of collective actions.

The collective (organization) is an amalgamation of actors, objects, and norms and is characterized by social phenomena that are more than just the sum of the individual behaviors and attitudes of the individual actors. Based on this assertion we must also assume that organizational learning is a phenomena of the collective and not just the sum of individual learning. Parsons' system theory of action suggests that both performance and learning processes have the capacity to change or disrupt the equilibrium in the organization-situation relationship. However, change in the "social system" itself occurs through the learning process, not just the performance processes, and is related to the basic assumptions held by the organizational culture (Parsons, 1953). It is the collective learning that enables the social system to survive in a chaotic environment.

Our inability to predict with accuracy the dynamics of the social system has moved us to consider alternative explanations of the situation. Just as in the field of natural science, we are now considering the social environment to be characterized by chaos theory (Prigogine & Stengers, 1984:

Gleick, 1990; Baker, 1990). The "new science" speaks of strange attractors, dissipative structures, and fractals allowing us to accept unpredictability, uncertainty principles and the use of organizational patterns, rather than singular variables, for the study of human systems (Wheatley, 1992). We can now think of organizations as social systems being formed, reformed and consuming energy in states of punctuated equilibrium and periodic movement between order and disorder (Baker, 1990). The integration of systems thinking, chaos theory and a sociological perspective of change provides the basis for a model of organizational learning.

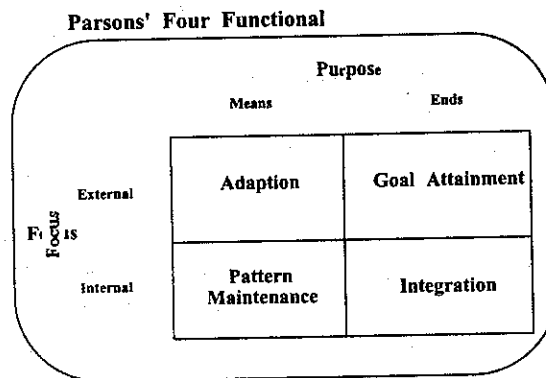
Organizational Learning Model

The organization's ability to systematically integrate its social aspects with environmental objects and processes is highly dependent on its capacity to learn. The "environment" of the organizational learning system includes both the organization's internal and external environment. The organizational learning system is so critical to the collective's survival that it must be considered an "evolutionary universal" (those factors that must be present for the species to evolve). Using this logic, I define the organizational learning system as;

"a system of actions, actors, symbols and processes that enables an organization to transform information into valued knowledge which in turn increases its long-run adaptive capacity".

Talcott Parsons (1951) in his delineation of social action theory describes four sets of actions as generic functional prerequisites that are the system's responses to critical problems associated with its survival. These actions of a social system are interdependent with respect to their "focus" and their "purpose" (see Figure 1).

FIGURE 1



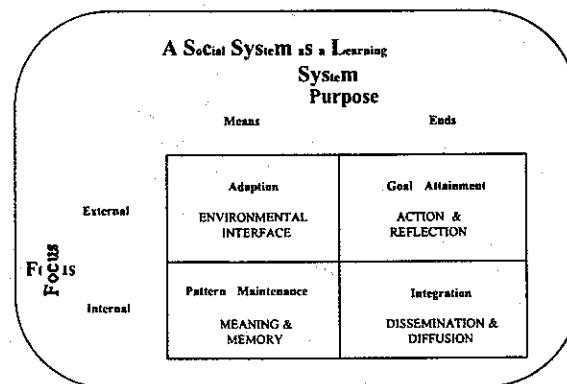
Source : Adapted from T. Parsons. (1953). Working Papers. Glencoe, Ill.: The Free Press.

As a system of collective acts, an organization may be viewed as a system of dynamic patterns of acts with the purpose of adapting itself to, or shaping, its external environment (Adaptation Function); attaining organizational goals (Goal Orientation Function); integrating all parts of the organization (Integration Function); and reinforcing the prevalent behaviors and the organization's cultural patterns (Pattern Maintenance Function).

Grounded in Parsonian theory, the organizational learning model developed in this paper focuses on the learning aspect of an organization as a social system. It provides a way of viewing organizational behavior that can explain how people in an organization collectively engage in the dynamic social actions associated with learning. It is focused on the system's ability to adapt to its environment not just through a performance orientation, but rather through a creative capacity that influences the cultural values of the collective.

Parallel to the general system of action, the organizational learning system carries out four functional prerequisites so that learning capacity is maintained for the collective. I postulate four learning subsystems that carry out these prerequisite functions for the learning system (see Figure 2).

FIGURE 2
The Model of Organizational Learning



Source: Adapted from Schwandt (1993) *Organizational Learning: A Dynamic Integrative Construct*. Unpublished manuscript.

The Environmental Interface Subsystem functions as the portal for information entering the organizational learning system. It consists of a collection of interdependent activities and actions that responds to signals from both the inside and outside of the organization determining the information it seeks and disperses. The conceptual basis for this subsystem is one of intake and output of information, therefore, relations center around the mechanisms which the system uses to secure, filter, and expel information, in both proactive and reactive modes. The processes used by the subsystem range from those designed to purposefully gather information based on internal criteria (e.g., market surveys, customer requirements) to those which passively receive information such as regulations and economic indicators imposed upon the organization from the external environment.

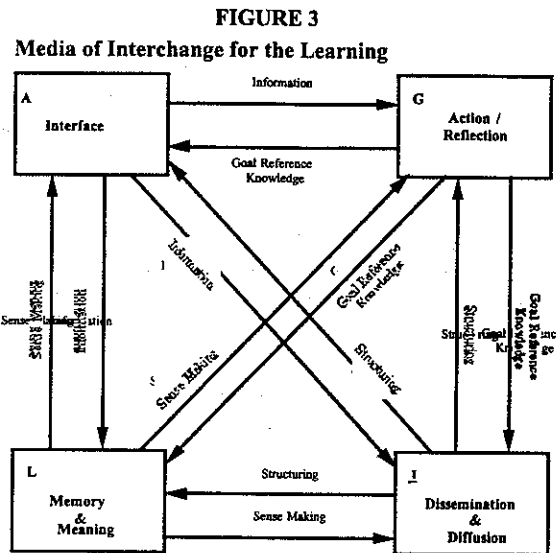
The Action-Reflection Subsystem creates valued knowledge from new information. This subsystem consists of a set of activities and actions the collective uses to accomplish the goals of the learning system and to understand the meaning of an action so judgments can be made concerning the action. The actions exist at two levels: 1) the level of routine actions that characterize the day-to-day operations of the organization, and are governed by standard operating procedures; and 2) the level of major actions which are perceived by the organization as having significant impact on their adaptive capacities. Reflection exists at both levels of action in different forms and intensity. The organization can reflect on its actions from three different perspectives: the processes used in the action, the content or results of the action, and/or the underlying premises of the action. Each of these reflection perspectives combines with a level of action to create knowledge which is the goal of the learning system.

The Dissemination/Diffusion Subsystem exists to transfer information and knowledge within the organization, thus integrating the learning system. It is characterized by its ability to match transfer mechanisms with the integrating requirements of the other learning subsystems. Dissemination processes are those that are more purposefully directed and are governed by formal procedures and policies. Diffusion techniques represent more informal process such as rumors and informal communications. Both modes include acts of communication, networking, management coordination, and other acts and roles supporting the movement of information and knowledge. The technical processes include electronic data transfer mechanisms and audio-visual means.

The Meaning and Memory Subsystem provides the foundation from which the other subsystems draw guidance and control. It maintains the mechanisms which create the criteria for the judgment, selection, focus, and control of the organizational learning system. Included are those acts directed at sustaining and creating the cultural beliefs, values, assumptions and artifacts of the organization. The

memory portion of the subsystem contains a series of storage mechanisms each with its own retrieval schema. These storage mechanisms are the individuals, the culture, the ecology, the transformations, and the structures (Walsh & Ungson, 1991). Human processes include collective and individual remembering and the use of consensus to construct the collective history.

The four learning subsystems do not function independently— dysfunction in one learning subsystem will jeopardize the effectiveness of the whole system because each learning subsystem requires inputs from the other subsystems. These interdependent relationships are maintained through interchange mechanisms called “interchange media”. These are objects to be manipulated by the collective and individual actors and result in products of interchange which are the invisible networks within which patterns of actions take place. The learning subsystems' interdependence on the media of interchange is graphically illustrated in Figure 3. These media are named New Information, Goal Referenced Knowledge, Structuring, and Sense Making and are made up of organizational variables traditionally used in a singular cause-effect relationships.



Source: Schwandt (1993), *Organizational Learning: A Dynamic Construct*. Integrative. Unpublished manuscript.

Table 1 provides examples of these variables as they relate to the interchange media. It is through the consideration of the variables as constructing media that we are able to identify the patterns associated with organizational learning. These relationships allows us to operationalize the model both in research and practice.

Table 1

Variables Associated with the Media of Interchange for the Learning Subsystems

<u>Interchange Media</u>	<u>Variables*</u>
New Information	<ul style="list-style-type: none"> - Internal & External Data - Customer Feedback - Employee survey
Goal Referenced Knowledge	<ul style="list-style-type: none"> - Results of an Experiment - Evaluation Results - Decision making processes - Knowledge structures
Structuring	<ul style="list-style-type: none"> - Organizational Roles - Leadership - Policies - Organizational structure - Group norms
Sense Making	<ul style="list-style-type: none"> - Schemas/ Scripts - Language and symbols - Values / Basic Assumptions

*Note: this list of variables is not meant to be complete, only representative.

Results of Field Research

This portion of the paper describes two field studies designed to ascertain the degree of applicability of the organizational learning model to the "real" world. The studies were designed to determine whether the model could be used to describe organizational learning from a sociological systems perspective and were not designed to determine cause-effect relationships among the variables that comprise the learning patterns.

I - The Case of the "Non" Merger**Situation**

The first field test of the model addressed the change associated with the merger of two small units within a major healthcare organization and the changes in organizational learning associated with the merger. Six months after the merger the new organization was not functioning in a unified manner. The presenting problems of the merger were: a lack of leadership; the lack of vision or strategic goals; and the barrier created by cultural difference between units. All of these conclusions held some validity, but yet not any single issue appeared significant enough to stop the merger. In addition, the performance objectives of this organization were being achieved on a day-to-day basis. The new unit was not emerging and this would eventually limit the growth and effectiveness expected of the unit.

Analysis

Our study of this merger began with the collection of data through interviews that would give us information concerning the four organizational learning subsystem and their respective functions. What respondents provided were not the descriptions of the organizational learning subsystem per se, rather they provided descriptions of the more concrete variables that formed interchange media emanating from the actions associated with the organizational learning subsystem.

The analysis resulted in the description of interchange media, which included data and comments around roles, information, organizational structure, values, time for reflection, etc. Using

the model as a lens, we formulated the results in terms of double interchange patterns—"interchange products". These products represent patterns of interchanged medium between two of the four subsystems. The organizational learning model suggests six such sets (Figure 3). These six sets (or interchange products) form the configuration indicative of the organizational learning system of the merged unit. The six sets of interchange media form a configurational learning pattern for the organization that did not allow the organization to successfully merge, even though it is successfully performing its mission. Its learning capacity is being hindered by a lack of congruency in the media of interchange which results in destructive learning system patterns. For examples of these mismatches see Table 2.

Table 2

Organizational Learning Patterns Data

Pattern I - New Information and Goal Referenced Knowledge.

The absence of reflection on their actions provides no opportunity for the units to question their actions, thus the knowledge produced is primarily a passing through of the new information the organization receives and is then acted on in a routine manner, thereby reinforcing the routine.

Pattern II - Structuring and Goal Referenced Knowledge.

The absences of leadership and a defined organizational structure allowed the knowledge or information to be moved as though the merger never took place.

Pattern III - Structuring and New Information.

Organizational members were not able to draw distinctions between new information and goal referenced knowledge. This is most obvious in the reported sluggish decision-making process which respondents saw as a contributor to the confusion.

Pattern IV - Structuring and Sense Making.

The differences in values of the two units under study accentuated and amplified the need to maintain their separate identities, separate data bases, etc. The lack of leadership enabled the separateness to be the default assumptions guiding the routine actions of the respective units and the constant conflict and confusion.

Pattern V - Goal Referenced Knowledge and Sense Making.

The inability to reflect on the new information created conditions which simply reinforced the separateness of the two merged units and reinforced their present set of assumptions concerning their situations. Not understanding the newly merged unit's goals allowed the two original units to maintain a "no difference" perspective.

Pattern VI - New Information and Sense Making.

The goal of the merger was never received by the staff so that it could be reflected on.

The model allows us to gain a perspective of the organizational learning system and its dynamic and complex relationship to the social system that is not now found in our traditional performance models. It is difficult to illustrate the dynamic nature of the patterns established by the organizational learning system and its subsystems. To provide a deeper understanding of the organizational learning model, the next case focuses on one of the four subsystems—Meaning and Memory and its interchange media.

II - The Case of Mixing Messages

Situation

A large Agency has maintained an internal, centralized human resources Unit for many years. The Unit carries out all Human Resource Management /Development (HRM/D) related activities for the Agency. The changing external environment and the reinventing of government has provided new information for the Agency and the Unit. The information indicates a move of the centralized HRM/D

services provided by the Unit to Agency line managers as part of their responsibilities with the central Unit assuming a more consultative role. Two years after the Agency's leadership announced the change, the shift of responsibility and functions had not yet taken place. The Agency portrayed this non-action as a result of competing demands on their time (i.e. the implementation of an Agency wide training program).

Analysis

Multiple in-depth interviews were conducted with the entire Unit staff and management. The purpose of the interviews was to ascertain a description of what, and how, meaning was assigned to their directed role change. The meaning schema that was assigned by the collective reflected a pattern of high skepticism concerning the change and its inevitability. All actions concerning the change and any attempt by the Agency leadership to promote the change was interpreted using this sense making pattern. The "skepticism" sense making medium influenced the overall learning pattern of the Unit and enabled the organization to maintain its routine roles. This sense making pattern also enabled a devaluing of the new information entering the learning system and appears to have been influential in the reduction of the Unit's capacity to unlearn old routines (Gundlach, 1994).

The description of the Agency's situation using the organizational learning model confirms our understanding of the criticality of the sense making processes within an organization's culture and their control of change. This supports other studies that have found interpretive schema are related to organizational culture and the resulting impact they have on the ability of the collective to understand the goals of the organization (Bartunek, 1993).

In each of our studies, it is apparent that the social acts of the collective can be interpreted through a "learning lens". However, organizations still seem to place a higher value on those factors associated with the performance system. The organizational learning model should not be an alternate explanation to any performance model descriptions of the organization, rather, it should be complementary. The social acts associated with organizational change have the potential to simultaneously influence performance and learning processes. This qualitative research, in conjunction with other studies, has provided evidence of the existence of patterns formed by the acts of the collective. These patterns can either enhance or hinder the learning system. This research also has other implications for the possible systems modeling of learning and performance from a "hard" systems thinking perspective.

Implications for Systems Models

The final part of this paper deals with the dynamic systems modeling implications of organizational learning and performance, and their relationship to change. As we found in our field studies, organizational learning is observable as patterns of interchange media (Table 1 and 2), however, both learning and performing of the collective can be contained in a single act simultaneously. This confounding relationship indicates a need for models that reflect a more comprehensive explication of change based upon the implicate order of the components of learning and performing.

From social system theory, we can assume the organizational collective changes through a series of unit acts (A_u) that can be defined as:

$$A_u = A_L + A_P$$

where A_L = learning system's act,

and A_P = performance system's act.

By operationalizing the above relationship using similar performance/learning interchange media, we can produce sets of double interchange patterns that are indicative of the dynamic relationship between the organizational learning and performance systems. To maximize this relationship and account for the interaction effects, I used a multiplicative relationship rather than the additive one shown above, thus:

$$A_u = (A_L) (A_P)$$

Each set of actions can be defined using Parsons' theory of action where:

$$\text{Act} = \text{Situation} + \text{an End} + \text{standard} \quad (A = S + E + N)$$

These terms are defined as;

1) a **Situation** = [S] which in turn, can be represented by: a) means [M] and b) conditions [C]. Therefore $S = C + M$

2) an **End** = [E] is described by Parsons as a future state of affairs to which action is oriented by virtue of the fact that it is deemed desirable by the actor(s) but which differs in important respects from the state which they would expect to supervene by merely allowing the predictable trends of the situation to take their course without active intervention.

3) at least one **Selective Standard** = [N] in terms of which the end is related to the situation.

It follows, in accordance with Parsons' formulation of unit act, that the performance and learning acts can be defined as:

$$A_L = S_L + N_L + E_L;$$

or

$$A_L = C_L + M_L + N_L + E_L;$$

and

$$A_P = S_P + N_P + E_P$$

or

$$A_P = C_P + M_P + N_P + E_P;$$

Using these definitions of the acts we can go back to the unit act relationship

$$A_u = (A_L) (A_P)$$

and substitute for A_L and A_P ;

$$A_u = (C_L + M_L + N_L + E_L) (C_P + M_P + N_P + E_P)$$

The four factors (C,M,N,E) that make up the actions are the interchange media representation of the prerequisite functions of the system. Therefore, the respective factors emanating from the actions of the learning system and the performance system (A_L or A_P) also represent the media of interchange. The actions of change are governed by complex patterns that are constituted with these interchange media.

To fully represent this complex pattern we must expand the above relationship;

$$A_u = C_L C_P + M_L M_P + N_L N_P + E_L E_P \quad (1st \text{ order})$$

$$\begin{aligned} &+ C_L M_P + M_L C_P + M_L N_P + N_L M_P \quad (2nd \text{ order-} \\ &+ M_L E_P + E_L M_P + N_L E_P + E_L N_P \quad \text{Cross-Over}) \\ &+ C_L N_P + N_L C_P + C_L E_P + E_L C_P \end{aligned}$$

This expansion delineates a set of four 1st order patterns associated with the two systems. These patterns are constituted by two interchange factors, each representing the same functional prerequisite and subsystem of their respective system. In addition, there are twelve 2nd order patterns that represent the cross-over between subsystems of the learning and performing systems. To optimize the change, one would have to optimize each of the 1st and 2nd order terms from the performance system with its corresponding term from the learning system. In practice this would occur when the respective factors were supportive in nature rather than destructive. The patterns would be congruent.

To maximize the change actions, two sets of 3rd order patterns should be added to the relationship. These patterns emanate from the organizational learning system and the performance systems and reflect an internal congruency of the interchange media in each system respectfully. These terms are;

$C_L M_L + M_L E_L + M_L N_L + N_L E_L$ (3rd order
+ $C_L E_L + C_L N_L$ Learning)

and
 $C_p M_p + M_p E_p + M_p N_p + N_p E_p$ (3rd order
+ $C_p E_p + C_p N_p$ Performance)

A total of twenty-eight terms represent the cross-over and internal congruency patterns required to model the interaction of the performance system and the learning system as they contribute to change.

Summary

This paper has presented an organizational learning model that has as its roots the sociological paradigms associated with change. The model incorporated the concepts of systems and the "new science" into a better understanding of collective learning. This understanding necessitates the characterization of learning as not only an outcome, but also as a systemic process that we can explain through the use of descriptive patterns.

The relationship between collective performance and learning is not well understood. In application it appears we give much more credence to performance as opposed to learning. In both studies discussed, performance was seen as the initial concern, however, the learning description pointed to much deeper and longer term solutions to the problem.

Each organization's learning patterns appeared to be critical to change. To maximize the collective's actions and their contribution to change, one has to maximize both learning and performance. If we are to model this relationship we must consider all orders of contributions to the complex patterns of change.

We must guard that we don't over sell the concept of organizational learning and thereby allow it to become a fad or fashion. We must first understand the ideas of configurational theory and patterns, and not jump to cause-effect relationships because we don't even know if cause-effect is a viable concept in the application to the new science. I would like to end this paper with a call to our fellow practitioners and researchers to continue to experiment with, and support inquiry into, the ideas associated with organizational learning. It is only through these types of actions that we become a learning society.

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