

Organizational Inquiry: The Search for Effective Knowledge

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Introduction

The process of knowledge production was examined from the perspective of pragmatic philosophy in a previous article in this journal [1]. Knowledge-creating processes were described as being essentially self-organizing, interpretative efforts by organization members to identify new, continuously more effective acts.

Acts are to knowledge as molecules are to chemicals. Acts are composed of (1) a perceived case, or situation in which the act is applicable, (2) an operative rule(s) for action, and (3) an anticipated result. Many of the popular knowledge management theories (KM) of knowledge-creation emphasize the importance of creating new knowledge by transforming tacit knowledge into explicit forms of knowledge. While such processes may fairly be said to have value, we propose that most effective new knowledge in organizations is the result of inquiry. Inquiry often ultimately results in knowledge being created, though that is not a given, as knowledge evolves through many states as the result of human social processes. Inquiry is an important catalyst that fosters the general evolution of recognizable 'signs', in organizations, from primary representations (iconic imagery, analogy, metaphor, pre-conscious, etc.) toward more sophisticated forms, such as symbols, logic, terms/propositions/arguments, as part of a process of social inquiry.

In this article, we will survey a pragmatic view of inquiry that produces effective knowledge. That is, a framework will be proposed which offers knowledge workers potential insight for recognizing how their efforts to evaluate the effectiveness of acts helps to create new knowledge.

Inquiry and Inquiring Systems

Most simply, inquiry is a process of creating or refining knowledge driven by a search for insight and competency. In other words, inquiry is the search for effective acts of thought and will. Effective acts enable workers to gain insight in interpreting situations, as well as learning about potential cases that may

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require the use of different acts in the future. Effective acts enable organization members to reliably attain results that are in line with anticipated results -- assuming goals are consistent with circumstances of the situation.

From this perspective, the typical search for 'best practices' in organizations might be viewed as a ***degenerate form of inquiry*** because best practices are not complete acts. Instead, they are usually focused on rules of behavior -- without due consideration of the circumstances that require such behavior. Often best practices fail to define the metrics that govern how desired results are to be recognized when they occur. Further, they are often dealt with from an *objective* point of view that assumes all users will perceive situations qualitatively in fundamentally the same way.

The two fundamental modes of inquiry are: (1) creating new acts that have not been previously known to the organization; and (2) determining the relative reliability, effectiveness, and overall trustworthiness of acts that are currently known to the organization. If an organization's knowledge management system (KMS) is skewed too far in favor of supporting one of these modes of inquiry the results are likely to be less than satisfactory.

Effective inquiry is the result of a balance between effort directed toward the search for new acts and efforts to evaluate the effectiveness of acts already used. Organizations that emphasize the search for new acts strive to be innovative, but often fail to identify and execute reliable acts well enough to remain innovative for long. On the other hand, organizations that emphasize inquiry into act effectiveness and validation are more capable of executing existing routines, but often fail to innovate well enough to survive a changing environment. (Figure One) A balanced KMS in an organization is more likely to be one that supports a system of knowledge production and integration where knowledge creation and evaluation are all in balance with inquiry.

So, the one important aspect of effective *inquiry management* in organizations involves creating new acts at a rate that is compatible with the organization's capacity to evaluate their utility. In essence, people make claims for how various situations should be viewed, and how rules should be employed to yield expected results. The validity of the claims must be assessed by communities of committed inquirers, in order to stand the test of scrutiny, and be accepted as worthwhile, proven practices in any organization.

Although organizational inquiry is often defined in the "information sciences" more as being a process in which organization members acquire information from well-structured sources, this is a very narrow view of the term. From a pragmatic perspective, inquiry is better defined as **a creative search for potential effective acts by a group of people who are committed to**

finding what works best in the present environment or to increase the adaptive capacity of the organization.

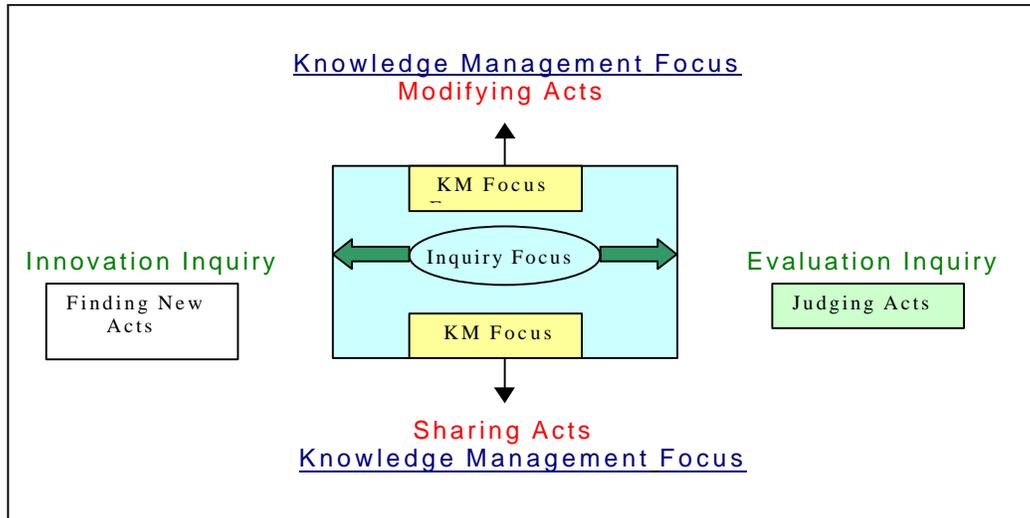


Figure One -- Inquiry Focus in Knowledge Management

This approach to inquiry finds its roots in the thinking of Charles Sanders Peirce, [2] who is acknowledged as America's greatest philosopher, and its modern application to knowledge management in the research on "creative intelligence" of the late Eugene Pendergraft [3]. According to this view, instead of acquiring information, the process of gaining actual information is viewed as a *knowledge-based activity*. Without knowledge, there is no information that can be effectively gleaned from the world (*acquisitive intelligence*). Rather, it originates from within (an organization) through creative inquiry.

The process of inquiry begins with people feeling a *sense of irritation as a result of doubts* about the reliability of their present knowledge. When a person feels truly doubtful about how things work it sends them off on a course of seeking solutions or improvements when these solutions or improvements are seen to apply to knowledge held, not just "external" situations. Their beliefs and the knowledge they hold, enable inquirers to formulate a sense of the outline of a problem or problematic circumstances that call for resolution. What fixes the irritant of doubt is just the re-establishment of belief in the knowledge being held by a person.

Doubt arises from putting knowledge to use and finding that it produces less than satisfactory results. In some organizational environments, it is exceedingly difficult to precisely discern how effective acts have been. The presence of time delays between cause and effect, ambiguities in interpreting

and measuring success, all contribute to the difficulty of gaining knowledge about which acts are truly reliably effective.

Sterman notes that, many times, such factors cause managers to reach erroneous conclusions and reinforce learned strategies that actually make performance worse. "Unfortunately, people are poor intuitive scientists, generally failing to reason in accordance with the principles of scientific method." [4, p. 310] Philosophers, such as Bateson, [5] and management theorists, such as Argyris, [6] have pointed to the importance of reflective learning processes that result in modifying theories-in-use through 'deutero' or double-loop learning. Most significantly, double-loop learning requires the same processes of inquiry that we are describing. Among the limits of double-loop learning is that its focus is on changing the higher order rules for action, rather than the beliefs that cause the perceptions and invoke the use of certain types of knowledge.

From an organizational perspective, the greatest challenge of using inquiry is not in its concept or rationale, but in the mechanics of implementing it on a relatively large scale. As they say, "the devil is in the details." Therefore, this article will place its greatest emphasis on the mechanics of inquiry.

The Modes of Inquiry

As was outlined above, inquiry can be performed in two fundamental modes. The first mode is that of *searching for acts* that may potentially be used by the inquirer. The second focuses on *evaluating the effectiveness and reliability of acts*.

Searching for Acts

Within this mode, there are a number of interesting sub-modes. Along one dimension, a distinction can be made as to the original source of the act. An inquiring system may infer conclusions from observing an "other" knowledge source that its behavior is based on. If this behavior is seen to be effective, the inquiring system may choose to provisionally adopt this inferred knowledge for its own and put it to its own test of use. This may be thought of as being *exogenous knowledge*. At the other end of this dimension, this search is often a creative one in which new acts are proposed as being "merely" interesting hypotheses that must be put to the test of use, rather than addressing the necessary (i.e., non-creative) implications of existing knowledge. That is, the inquiring system may create new acts purely from its own experience and past knowledge. This may be thought of as being *endogenous knowledge*.

Inquiry and the 3 Point Shot

A simple illustration of this process in action is the evolution of the three-point shot rule in basketball. This rule was first introduced to “open up” the game by providing an incentive to take longer-distance shots rather than focus on the more reliable (and from a spectator’s perspective, perhaps more boring) inside game.

At first, it was used relatively rarely because it was believed, by most coaches and players, that the likelihood of making shots from outside the three-point arc was too low to make it a successful game-winning strategy. However, a small number of teams began to experiment with making the three-pointer a key aspect of their game plan. Some pundits have argued that this strategy can be attributed as the reason for much of the success of well-known coach Rick Pitino. On the basis of their own experience, increasing numbers of coaches found ways to successfully use the three-pointer to win games. That is, they created “three-point acts” on their own and put them to use.

Later, other teams seeing the success of such game plans inferred what these three-point-oriented teams must believe about using the three-pointer and integrated this provisional knowledge into their own game plans. For some of these adopters, the experiment was a failure, perhaps because they inferred the wrong beliefs (e.g., shoot the three-pointer every chance you get) or because they didn’t have the personnel to carry it off successfully. Other adopters, however, were able to take the three-pointer and use it effectively, even further developing it based on their own experience (e.g., using it just often enough to force the defense to guard against it, making the more reliable inside game even more effective). Similar types of inquiries are going on in business all the time, as all management “fads” (including KM) have courses of evolution similar to the three-point shot in basketball.

Several years ago the authors were contacted by a company whose president wanted to transform the organization into a “learning organization”. The thought of becoming a learning organization was intriguing to the president of this medium-sized manufacturer of automated equipment. The company had been historically managed in a way that fostered innovation through promoting competition among teams for scarce resources. The internal competition within the company was so fierce that the company president once remarked, “My managers here are like “fighter plane pilots” , they're all trying to shoot each other down. How do you expect them to share knowledge?” Unsurprisingly, there was little support among the rank and file managers to become a learning organization, and efforts to promote such a transformation never caught on within the company.

On the other hand, companies such as, Royal Dutch Shell, attribute some of their success over the past decade to the benefits of becoming a learning organization. For the leaders of some organizations, the effort to become a learning organization is viewed much as a technique or a program that is rolled-out. Conversely, in some organizations the words 'learning organization' serve a more general purpose as a mantra or guiding philosophy that informs how they do business. Employing inquiry in organizations is not as simple as using a well-defined technique, however.

Inquiry can often be problematic in many organizations because of four basic types of limits: (1) the rules followed may not be explicit, (2) personal interpretation of each case may be skewed by perceptual biases, (3) results may be difficult to interpret due to systemic noise, and (4) time delays between cause and effect may distort associations between specific causes and effects. However, knowledge produced from inquiry is necessary for organization members to determine whether the acts they are using should be continued, modified, or replaced by other endogenous acts or exogenous ones. So organizations must find a way to compensate for these four categories of limits.

Evaluating the Effectiveness and Reliability of Acts

The second mode of inquiry is that which focuses on evaluating the effectiveness and reliability of acts. This process starts with someone making a claim that a given act, composed of a case-rule-result [1], may be effective in producing the expected result. The sole means of evaluating act effectiveness is through the use of feedback from actual results. This enables knowledge workers to contrast the difference between anticipated and actual outcomes.

In cybernetic theories of management, the primary value of such types of feedback is that it affords managers the opportunity to improve operational control over a system. In action-learning theories, such as those of Argyris, the greatest benefit accrues when awareness of such feedback enables organization members to test the validity of their 'theories-in-use', and modify existing decision rules to better fit the situation. In organizational learning theories, such as those of Senge, this feedback is useful because it helps members of a learning community determine whether their shared mental models are as robust as they need to be for continuing effectiveness.

From a pragmatic point of view -- based on the writings of Peirce -- ***the main value of performance feedback is that it facilitates inquiry's sole purpose -- the settlement of opinion.*** (p.100) [7] By settling opinion, we mean it *puts inquiry at rest*, with regard to any given issue, and assuages the *irritation of doubt* that drives knowledge workers initially to commence the

process of inquiry. It is critical to note that *settlement of opinion* can never be the same thing as discovering *true opinion*. ***It is not truth that sets doubt to rest, rather it is reaching a firm belief, either true or false, that puts doubt to rest.***

From a practical knowledge management viewpoint, the most that can be reasonably claimed is that knowledge workers seek a belief that they *think* to be true. It is commonplace for organization members to think their beliefs are true -- regardless of their validity. The mere act of thinking that something is true has little bearing on the whether something is in fact true -- but it does settle opinion and relieve doubt. From a knowledge management perspective, inquiry, by helping explicate knowledge claims which can then be scrutinized by the community, functions to move toward settling the shared opinions of members of a community of practice that the acts they employ are effective.

This theme echoes not only from the early writings of philosophers, such as Charles S. Peirce, since the late 1800s, but also in the work of contemporary writers, such as Peter Senge [8]. Peirce saw action as being belief's effect, more than its purpose. In his view, action is like the finale of a symphony of thought. No one would assert that a symphony's finale was itself **the purpose** of the symphony; but rather, it is its upshot."

In organizations, certain acts often become favored -- either because they have been proven to be effective or, at least, they are more "provable." That is, the feedback of whether an act is effective in yielding desired outcomes is less ambiguous and more timely than rival acts. This is not always a superior criterion for assessing the value of acts. It is useful to think of acts as evolving, over time, from a process of development and having some degree to which they are proven. Some acts are widely understood as having been proven, some are in the process of being proven, and others are relatively unproven or discredited.

By viewing the inquiry process over time, as a film, rather than a snapshot, we can see that various acts (knowledge claims) emerge to achieve greater recognition or decline into obscurity. Those less visible acts in organizations are used infrequently due to their relative disadvantage in comparison with other acts. Similarly, the quality of knowledge can evolve, over time, as it becomes more used and validated by members of communities of practice, and others in an organization.

Inquiry and Knowledge Development Processes

Clearly, inquiry plays a key role in knowledge development processes. *Knowledge development* is distinguishable from both knowledge

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management and knowledge evolution. Knowledge management as a process is by its very nature *managerial* in focus. That is, its *raison d'être* is to serve the expressed strategic intent of the organization. At the core of a manager's work is to plan and control. Knowledge is not easily controlled. At the opposite pole of the spectrum from knowledge management through planning and control is *knowledge evolution*.

The common understanding of knowledge evolution is that knowledge is viewed as naturally unfolding over time as a simple consequence of the accumulation of human experience. Knowledge development, on the other hand, is the natural result of deliberate, purposive, inquiry. The effect of knowledge development is to accelerate the rate of knowledge evolution by facilitating the process by which communities of inquiry discover and assess the utility of knowledge. This developmental perspective can be seen concretely in the construct known as the Knowledge Life Cycle (KLC) model, as first formulated by Swanstrom, Firestone, McElroy, Weidner, and Cavaleri [9]. It proposes that the critical processes in knowledge-creating organizations are knowledge production (including information acquisition, individual and group learning, knowledge claim formulation, and knowledge claim validation) and knowledge integration (including broadcasting, searching/retrieving, teaching, and sharing). The outcome of knowledge production is validated knowledge. The outcome of knowledge integration is knowledge embedded in organizational structures (when viewed from an interaction point of view), or the distributed organizational knowledge base (when looked at from the content point of view).

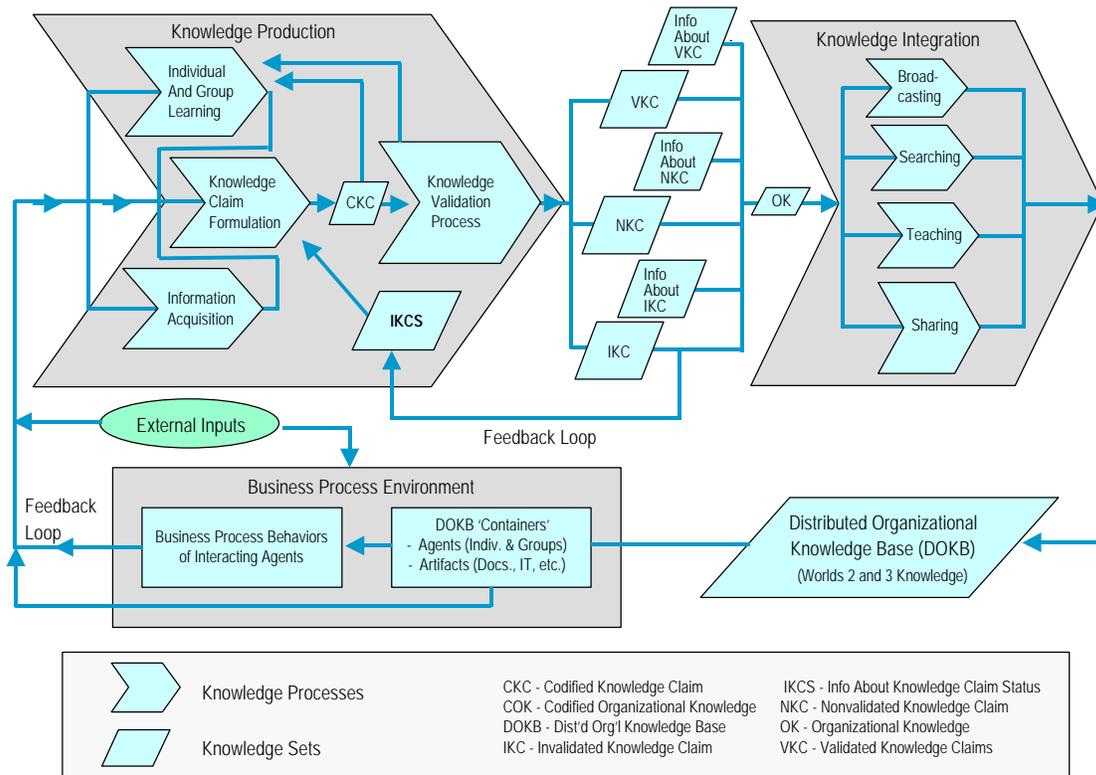
This organizational knowledge is then *used* in business processes to produce business process-induced behavior, which, in turn, gives rise to new problems, further inquiry, and more knowledge production. The KLC Model, illustrated in Figure Two, provides the context for the rise and fall of knowledge claims, the competitive struggle among them, and the production of validated knowledge claims that enable the organization to survive and adapt to its environment.

Inquiry plays several important roles within the context of the KLC. If knowledge claims can be thought of as acts, then inquiry begins, as a result of the irritation of doubt arising from business process-induced behavior, as a search for potentially effective acts. Knowledge claims are proposals made to a community of practice on behalf of specific acts. Knowledge claims assert that the acts they specify are effective. As can be seen in the KLC model, knowledge claims are initially acts asserting unvalidated information. Unvalidated information must be surely differentiated from invalidated acts. Invalidated acts are those knowledge claims that have been scrutinized by the community and identified as invalid. Unvalidated acts are those knowledge claims that have yet to be fully scrutinized to have their validity or

invalidity ascertained, or are knowledge claims that could not be validated or invalidated in previous inquiry.

The validation process requires time and effort to monitor whether acts-in-use reliably produce expected results. Here again, inquiry plays a major role in monitoring such acts to accurately determine their performance characteristics. Implementing inquiry for this use often presents a challenge of selecting appropriate metrics, proper evaluation time frames, clearly defining desired outcomes in ways that can be unambiguously verified.

The Knowledge Life Cycle (KLC)



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Figure Two -- The Knowledge Life Cycle Framework (Adapted from Joseph M. Firestone and Mark W. McElroy, CKIM Level I Course Notes [10])

Viewing knowledge development as a *process* that can unfold, over time, when accompanied by necessary managerial and organizational supports, can help knowledge managers act upon the basis of a deeper appreciation of how knowledge is created and used in organizations. We believe this type of view is imperative because viewing knowledge management from a

mechanical or event-oriented perspective often leads to unnecessarily limited results or unintended consequences. A more robust way to view knowledge development is as an emergent process unfolding within the context of a complex dynamic system, capable of being influenced by managers, but not controlled.

Inquiry is very important as a catalyst to knowledge development and knowledge management, as it is to all types of management. What makes inquiry so relevant to knowledge development is that it is a natural human process that can be enabled and supported by managers who possess a clear vision of the important role of inquiry in organizations. While the dynamics of knowledge development are a topic that deserves considerable attention and future research, we will offer a simple framework for understanding some of the basic knowledge dynamics that occur in conjunction with inquiry in organizations.

Knowledge Dynamics

One benefit of taking a process-oriented view of knowledge is that it enables managers to account for some of the common patterns of change in knowledge that are often observed in organizations over time. One of the most productive ways to understand how inquiry affects knowledge development, over time, is by viewing knowledge as being part of a stock and flow system with simple feedback mechanisms. Let us examine some of the simple elements and processes that are often at play in such systems in organizations.

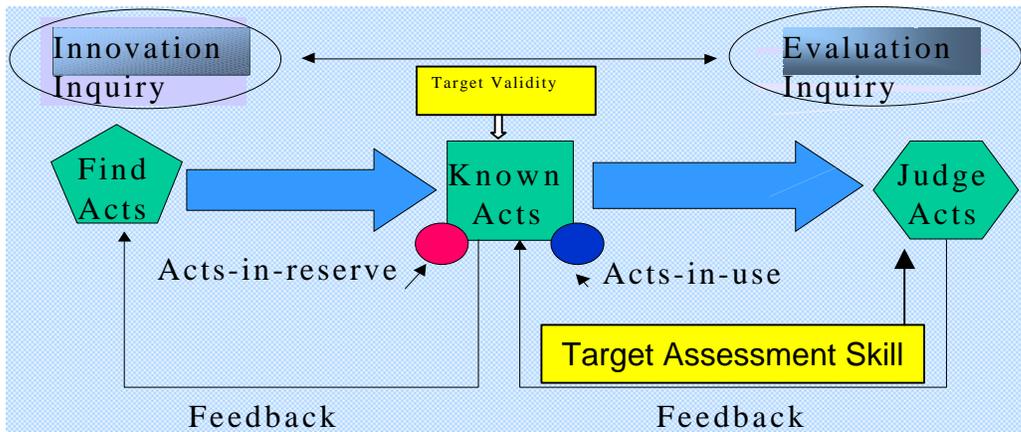


Figure Three -- Act Stocks and Flows

The essence of effective inquiry in organizations involves searching for new acts that produce flows of new acts into the organization at a rate that is compatible with the organization's capacity to evaluate the validity and effectiveness of acts. Effective inquiry processes help to determine the

effectiveness of knowledge-in-use, and provide insight into whether that knowledge should be tinkered with and modified in some particular way. If the rate of flow of newly identified acts from inquiry processes exceeds the rate at which acts can be evaluated, then a relatively greater portion of the knowledge-in-use in an organization will be in the form of unvalidated knowledge claims — rather than validated or invalidated knowledge claims.

In other words, when act discovery rates exceed act evaluation rates, then, accumulations or backlogs of knowledge claims grow at an increasing rate.

Axiom #1: When act discovery rates exceed act evaluation rates, then, the accumulation of non-validated knowledge claims grows at an increasing rate that causes a greater portion of the organization acts-in-use to be non-validated knowledge.

On the other hand, when organizational capacity for act evaluation exceeds the rate at which new acts are discovered, then new acts are not introduced into the organization at a rate that may be optimal for increasing levels of performance sufficiently to maintain competitive advantage in the long run. While there is no intrinsic need to make act discovery rates equal act validation rates, there are at least two important reasons that describe benefits from keeping the velocity of these two flows similar.

First, if the cost of act discovery is relatively high, then unused acts represent a sunk cost that may not provide a return on the cost of discovery. Secondly, acts that are not used are more likely to be forgotten. This may not seem like a compelling reason, but when one considers that many organizations experience turnover of personnel of twenty percent per year, many of the people who were involved in the discovery of certain unused acts may be gone from the organization, and new-hires each have their own interests and agenda for knowledge. In a sense, the 'social life of knowledge' causes unused acts to have a limited 'shelf-life'. Unlike data or information stored in some particular form, acts are more susceptible to the potential for decay over time.

Axiom #2: When organizational capacity for act evaluation exceeds the rate at which new acts are discovered it may lead to a situation of organizational slack that is potentially either costly or inefficient.

What forms do *organizational capacity for act evaluation* normally take? Have you seen someone with the job title of **knowledge evaluator** in your organization lately? Of course not! Those employees who evaluate the utility of knowledge-in-use are practitioners -- often they are experienced practitioners who have sufficient experience to discern the attributes of what works best. The reasons why Axiom #2 is important have much more to do

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with contingent factors that are different in each organization. There are three factors that directly affect and influence the hypothesized effect of Axiom #2 in organizations. These are the: 1) cost of acquiring capacity, 2) acceptable level of validity required of knowledge claims, and 3) acceptable level of capacity.

If one assumes that evaluating act effectiveness is something all workers do anyway, it requires no special training, and when a group agrees that something is valid, then, it is in effect valid and Axiom #2 will have no bearing. However, as we will argue, such conditions are rare, or at least not conducive to effective knowledge management.

This discussion may be informed by grounding it in actual practice. First, in practice, there are few sizable organizations where most acts are proven to be valid and satisfactory most of the time. Many organizations today are not content to accept only satisfactory acts, but rather they are seeking the best acts that will confer competitive advantages upon them. Next, what do we mean by the 'capacity for act evaluation' and what is its cost? If we examine companies such as, Harley-Davidson, Intel, Motorola, Nokia, and Toyota that have embraced the Total Quality Management approach, capacity takes the form of a continuously upgraded skill-base that derives from teaching employees the skills and concepts of actually how to measure quality. For many such companies the acceptable level of quality is *six sigma*, and attaining such high levels of quality requires that a wide base of employees develop a relatively high level of skill. The annual cost of supporting this level of evaluation skill is clearly non-trivial. In some companies, the cost of training and development can range up to twenty percent of the annual operating budget.

If, in fact, a company seeks high levels of knowledge validity and is willing to enable employees to develop relatively high level of skills in assessing knowledge validity, then the cost of having such a high proportion of employees with such skills, but relatively few new acts to validate is decidedly significant. Much of the impact of these factors is determined by two simple decisions: 1) target validity level, and 2) target level of employee skill in assessing validity. This is identified as 'target level of skill assessment' in Figure Three. In the main, most managers in organizations are, unfortunately, more greatly concerned with the practical interest of knowing whether an act works well *today*, and not whether it is valid over time.

One of the ways that organization's are able to counteract the effects of on imbalance in such systems are by relying on the experience and savvy of knowledge workers in communities of inquiry. While much has been written about communities of practice, relatively less has been said about communities of inquiry.

Communities of Inquiry

The role of cooperation in inquiry runs through not only the work of Peirce, but also his fellow founders of the American pragmatist philosophy. Harvard scholar Hilary Putnam [11] observed that a distinguishing characteristic of the American pragmatist philosophers' (Peirce, James, Dewey) worldview is the importance they place on the role of *cooperation* in human social systems. Putnam [11, P.72] notes, "Cooperation is necessary both for the formation of ideas and for their rational testing."

Thought leaders in the field of knowledge development, such as John Dewey, [12] focused on a single method for helping people learn which beliefs work best. In organizations, there is no more effective way of knowing which acts truly are reliable and effective, than to achieve a consensus of opinion among a group of committed employees who are *inquirers*. We define *inquirers* as people who are *willing* to experience the feeling of true doubt, and are *committed* to searching for new, reliably effective, acts.

Throughout Peirce's writings the notion of a community of committed inquirers is ubiquitous. For example, as far back as 1868 Peirce writes [7], "Thus, the very origin of the conception of reality shows that this conception essentially involves the notion of a COMMUNITY, without definite limits, and capable of a definite increase in knowledge. And so, those two series of cognition -- the real and the unreal -- consist of those which, at a time sufficiently future, the community will always continue to reaffirm; and of those which, under the same conditions, will ever after be denied." (p.69)

For example, medical scientists trying to find a cure for a particular disease often behave as a "community of inquirers" by reviewing each other's research findings, publishing peer-reviewed articles, and participating in various debate forums. Xerox Corporation's chief of research on learning, John Seeley-Brown [13], similarly talks about the need to develop "communities of practice" where people with a common interest in an activity can come together to inquire and experiment with their new ideas. In fact, the communities described by Seeley-Brown represent both communities of practice and inquiry.

More often, such knowledge-creating communities are most likely to be embedded in "learning organizations" [14], knowledge-creating companies [15] "inquiring systems" [16], or "communities of practice" [17]. However, our focus remains centered on the notion of what Hilary Putnam calls the *democratization of inquiry*. [13] The idea of democratizing inquiry in an organization implies a system where communal inquiry and knowledge sharing are highly valued. From this perspective, innovation and adaptation

are driven by the ability of all members of an organization to contribute to creating new knowledge.

This vision of organizations is a clear departure from the prevailing view that suggests knowledge-creation is the sole province of executives and those members working in research and development centers. Xerox's Seeley-Brown and Duguid, [18] view organizational knowledge-creating systems as being more like a natural ecology than any sort of machine. They observe, "The ecology at large is an enormously powerful, significantly self-organizing ecosystem developing new ideas ubiquitously." (p.172). [19]

Here, we see that inquiry is just not for arriving at new meaning, but rather it is critical for performance improvement. The notion that the periods of time managers devote to inquiry is somehow not productive is *archaic*. It fails to consider the needs for continuous performance improvements and innovation in organizations.

Inquiry Cooperating With Performance

If everything you did was totally effective -- with a success rate of one-hundred percent -- why would you care about inquiry? You would not, of course. The irritant of doubt would never strike you. Consequently, you would remain in what is called a *Performance mode of activity*. In this mode, you assess your situation and chose acts based on existing knowledge that are expected to best satisfy your purposes. The results of this performance, along with those of others in your environment, again present a new situation to be assessed and acted on. With perfect knowledge, you would be able to continue this cycle indefinitely, satisfying all your purposes throughout time.

In the real world, however, knowledge is never perfect and so our performance mode is fraught with misinterpreted situations and failed expectations. These failures arising from Performance become the starting point and motivation for a new phase of Inquiry that hopes to reduce such failures in future performance. This cyclical pattern can be recognized in the KLC, the knowledge life cycle activates when a problem arises in other business processes.

There is, however, a natural tension between Inquiry and Performance. Simply in terms of effort, both modes of activity compete against each other for time and resources. Since it is only during Performance that the outward purposes are achieved, a system that is preoccupied with Inquiry will inhibit its ability to achieve what it wants. On the other hand, a system preoccupied with Performance cannot learn and will eventually become either obsolete or over-run by smarter competitors.

Another way of capturing this tension between Performance and Inquiry is the common admonition “Best is the enemy of good enough.” If Inquiry and Performance are competing for resources, then the decision of allocating resources between them must be based on expected return on investment. On the one hand, present knowledge allows the system to achieve its purposes with some level of satisfaction, and taking away resources to conduct Inquiry will impede this progress. Against this must be balanced by the expectation that inquiry will eventually lead to even greater effectiveness in Performance that may outweigh the short-term loss. In other words, it really does seem to come down to knowing what is “good enough.”

The tension between Inquiry and Performance may also be situationally-dependent. When the risks of failure are high, the system will tend to remain in Performance mode, choosing the most reliable acts available. On the other hand, when the risk of failure is lower it may be more conducive to inquiry, either for allocating resources away from performance, or to put to use less validated acts that hold greater potential than those already validated through use. This particular aspect of Inquiry is critical in that no matter how many or how good the new acts being created by the creative mode of inquiry are, they are of unknown value until they are put to the test of use and validated by the community.

Implications of Inquiry for Knowledge Management

Why is so much emphasis being placed on evaluating the effectiveness of acts? Why should practical managers even care? The significance of knowing the relative effectiveness of various acts is because the ultimate goal of KM is both to create better acts and more importantly, to enrich those belief systems which govern all future actions. Peirce, states it the most clearly, "...belief consists mainly in being deliberately prepared to adopt the formula believed in as the guide to action" [7]. In other words, we *will* act according to our beliefs. And, our beliefs—about acts that we see as being reliable—must have gotten that way by having proven themselves *in the past*. This is not to say that this is the only way that beliefs arise, but when we discuss 'scientific' means of enriching and repairing beliefs, this perspective is quite relevant.

The only form of act that can be both applicable to past and future is a general rule, or what Peirce called a “habit.” And so, the evaluation we are emphasizing here is not of specific acts (e.g., having been used at such-and-such a time), but rather general rules or habits of which specific acts in both past experience as well as in the future are instances. The crux of the pragmatist's scientific approach to understanding the evaluation mode of inquiry is in noting such past instances of an act as evidence to determine its potential worth in guiding future action.

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Here, our thinking finally comes to a point of resting its service to inquiry, and simultaneously turns back to issues of performance. Pragmatists tend to view most types of human knowledge as being rules for action -- which when used -- inevitably spirals to create even new doubts that demand further reasoning. However, at the same time, beliefs can lead to effective knowledge with beliefs, serving as stopping-places, as well as being a new starting place for our subsequent thoughts.

The *real* purpose of finding out *what works reliably well* is to help *recondition our perceptions* of the world. This is done by giving our minds access to those feedback loops that are necessary to reprogram 'the mechanism' -- the master program that governs how we think and act. For Peirce, actions are the truest barometer of what *is true* because they have the fullest contact and proximity to nature's laws and essence. In other words, our success in using any actions is automatically determined by the underlying structure and forces at work in the world.

Simply, those rules that work consistently well in delivering expected performance are often valid because they are grounded in the causal nature of reality. On the other hand, thoughts and perceptions are products of the human mind that cannot be directly grounded in the reality of what works. For knowledge workers, achieving similar grounding in experience can be best done in informing themselves of which rules work, and developing robust explanations for why they seem to work.

The underlying belief systems that govern human perception cause people to repeatedly perceive only those things that their minds will enable them to see. On the other hand, those acts that are consistently effective are forced to conform to the unfailingly brute force of nature, not the frailties of human thought processes. The late pragmatist philosopher, Vincent Potter, [21, P. 16] argued that nature's tendency toward orderliness shapes human thought over time. "Nature's objective regularity specifies man's knowledge (final cause) accordingly. Even if, through some perversity, some men, even over long periods of time, should choose to counteract Nature's directives, in the long run experience will force man to recognize her as growing in rationality in spite of him and as guiding him in the development of his own quest for reason." In other words, true knowledge is aligned with the underlying pattern of nature.

Conclusion: Inquiry in Practice

Inquiry is a search for relatively effective acts that will produce desired results. In organizations, one of the chief knowledge processing tasks is to develop and store acts and design systems to evaluate their relative effectiveness. Although, managers traditionally view their jobs as being to contribute to

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performance of organizations, there is reason to question what the best route to that end might be. On the other hand, when we view the purpose of thought as being to develop a more robust system of rules for action this provides incredible leverage to an organization for one simple reason. Organizational knowledge is the system of rules for action held by individuals and shared among members of various communities of practice and inquiry. A method that produces the highest quality of available organizational knowledge is the most likely, among all alternatives, to produce favorable actions that yield desired results.

Clearly, inquiry plays a critical role in evaluating acts and defining how acts will be used in organizations. Despite the seeming importance of inquiry in organizations, it is often deemed to be solely the province of researchers and viewed as only indirectly related to performance and action. To the contrary, we argue that inquiry is the basis for all effective action in organizations and must be accorded a prominence in managerial thinking that acknowledges its critical role in enhancing performance. To move in this direction, knowledge managers must move from thinking about inquiry as being a solely individual activity to seeing it as a dynamic process that should be supported throughout organizations and through the work of communities of inquiry. [22]

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