

# LEARNING & INNOVATION IN COMMUNITIES OF PRACTICE

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The knowledge era is here, bringing into focus the importance of learning and innovation for competitive advantage in organizations. Since knowledge is the supreme “coin of the realm,” organizations must learn how to learn and innovate, for the sake of success and even survival. The realities of the knowledge era are that workers are required to extend knowledge beyond the limits of personal experience, and that many people are overwhelmed with information (McDermott, 1997). Traditional learning models are inadequate in dealing with these realities. Many authors expound on the learning organization, and the processes that must be put in place for learning to occur. But, is there an easier way? Could natural forms of learning that already occur in the workplace simply be enhanced? Can we learn from what people are doing naturally? The proponents of the communities of practice viewpoint believe we can.

In the knowledge era, the invisible is often the most valuable (Brown & Gray, 1995). In other words, attending to the tacit knowledge that is most often neglected or ignored in organizations may be the key to success and/or survival. Traditional learning models focus on the explicit, to the detriment of the tacit. Researchers are finding that this tacit, invisible learning bridges the gap between explicit policies and successful practices.

The traditional view of learning artificially divorces work and learning. Work is done on the job; learning is done in training facilities, often off-site. Frequently the result is a lack of knowledge transfer from the classroom to the workplace. For some reason, society attaches more value to this learning of “abstract” information, often blatantly ignoring details of practice, assuming that anyone can learn these. Instinctively trying to bridge the gap between work and learning, employees make connections quickly to get the answers to the questions they need answered, forming what is known in the literature as communities of practice.

The purpose of this paper is to overview the literature covering the theory of communities of practice in order to understand how organizations can utilize new ideas to facilitate learning and innovating. To reach this end, I will attempt to answer a number of questions. What are communities of practice? Why do they form? How and why does learning occur? Why are they important? How can organizations support them? I will conclude by discussing some implications and limitations of communities of practice.

## What Are Communities of Practice?

In the 1980's, anthropologists from the Xerox Palo Alto Research Center (PARC) observed a group of copier technical representatives to see how they actually did their jobs. The anthropologists saw that the technical representatives made an effort to spend time with each other, informally swapping stories from the field. While a traditional reengineer would have recommended cutting this "hanging around the water cooler" time, the anthropologists realized that these informal conversations were where learning occurred. As it turned out, the copier technicians learned more from each other than from the manual distributed by the organization. Instead of prohibiting them, Xerox decided to expand the informal conversations (Brown & Gray, 1995). These informal learning groups were termed "communities of practice" (CoPs) by Lave and Wenger (1991).

A CoP is "a naturally occurring and evolving collection of people who together engage in particular kinds of activity, and who come to develop and share ways of doing things – ways of talking, beliefs, values, and practices – as a result of their joint involvement in that activity" (Galagan, 1993, p. 33). These groups share similar goals and interests, and, in pursuit of these goals and interests, apply common practices, use the same tools and express themselves in a common language. Ultimately, they create their own culture, complete with similar beliefs and value systems. Part of this culture is being aware of the range of goals and beliefs held, as well as techniques used, by community members at large. The motivation for becoming a member is that it is the best way to learn the practice. The best way to access the knowledge is to interact with the community (Brown & Gray, 1995).

A CoP is not necessarily an authorized or identified group. People in CoPs can perform the same job (e.g. tech reps), collaborate on a shared task (e.g. software developers), or work together on a product (e.g. engineers, marketers, and manufacturing specialists). They are peers in the execution of "real work." What holds them together is a common sense of purpose and a real need to know what each other knows. Many CoPs exist within a single company, and most people belong to more than one of them (Brown & Gray, 1995). CoPs exist outside the organization as well; social clubs, professional organizations, and even families can be considered CoPs. CoPs can be a double-edged sword in that they may facilitate beneficial (e.g., Alcoholics Anonymous) or detrimental (e.g., street gangs) learning and behavior.

Each person belongs to many CoPs with varying degrees of centrality. In some CoPs we are only peripherally involved; in others we are centrally involved (Drath & Palus, 1994). For example, you might be the president of your professional society (highly central), and only an infrequently attending member of another group (peripheral involvement). Centrality of involvement is contingent upon the interest and need in being a member of the group.

Lave (1992) illustrates the CoPs view via Yucatec Mayan midwifery. Young Mayan girls watch as their elder relatives assist births. Eventually, she is allowed to help with the easier tasks, gradually watching, learning, and practicing increasingly difficult techniques. Ultimately, she becomes an experienced midwife, and assists the training of other girls.

### Characteristics of Communities of Practice

Typically, CoPs share several characteristics. Groups without every characteristic can still be considered CoPs, but they may be less effective in facilitating learning. The characteristics of potentially effective CoPs are discussed later.

Shared interest. The people in CoPs have a shared interest or need to engage in an activity. They comprise the people who engage in an activity based on that interest. A “mutual practice” occurs when the community engages in its interests (Linde, as cited by Galagan, 1993).

Common sense of purpose. What holds CoPs together is a common sense of purpose and a real need to know what each other knows (Brown & Gray, 1995).

Emergent. CoPs emerge of their own accord (Stamps, 1997; Stewart, 1996). Their shape and membership emerge in the process of activity, as opposed to being created to carry out a task (Brown & Duguid, 1991).

Often different from formal structures. Since CoPs are emergent, they are often different from formalized organizational structures. Formal structure (e.g. rigorous management) often inhibits the informal exchanges that learning depends on (Purser, Pasmore, Tenkasi, as cited by Stewart, 1996). In a CoP, people are united by more than membership in a group or category, they are involved with one another in action (Lave & Wenger, as cited by Drath & Palus, 1994). Since CoPs are often informal, they are difficult to identify (Wenger, 1996b). CoPs are among the most important structures of any organization where thinking matters, but they almost inevitably undermine its formal structures (Stewart, 1996).

Responsible only to themselves. Since CoPs are usually not formalized, they are responsible only to themselves – like professional societies. Membership is voluntary, and the group has no specific “deliverable” (Stewart, 1996). They have common interests, but no formal product to deliver.

Collaborate directly. Via face-to-face or electronic means, members of the CoP share practices with each other by direct collaboration.

Shared history. Since CoPs develop over time, they have a shared history (Wenger, as cited by Stewart, 1996). This shared history is vital for the formation of a common culture.

Culture. Since they have common history, interests, and purposes, over time CoPs develop a way of dealing with the world they share via customs and culture (Wenger, as cited by Stewart, 1996). This culture may include their values and language.

### Why Do Communities of Practice Form?

CoPs form naturally due to the shared interests of the members in the group. The motivation to become a member is to learn the practice from others. Yet, often, the motivation for forming CoPs is for a deeper reason.

In organizations, CoPs often form to fill the gap between canonical practice (officially recognized organizational practices, often published in the form of manuals and procedures) and desired performance. Following the canonical practices alone usually does not work, since, in practice, work is much more complex than what is written by the organization. For example, the Xerox copier techs kept two sets of manuals: the official, organizational copy, and their own personal copy, complete with notes and stories they had learned over the years. Since following the canonical manual alone did not result in desired performance (a repaired copier), the techs improvised by coming up with innovative new ideas through collaboration with other members of the community.

The often tacit learning shared by the CoP, then, can be termed noncanonical practice, which is the way work is really done. A useful analogy compares canonical practice to a road map, and noncanonical practices to road conditions. Traditionally, people are held accountable to the road map (in the form of job description, etc.), not the actual road conditions such as the unpredictable situations that inevitably arise. Key features of the noncanonical practices that people construct to fill the gap between the organization's canonical practices and successful work practices include narration, collaboration, and social construction (Brown & Duguid, 1991). These ideas will be discussed shortly.

As a result of Total Quality Management (TQM), ISO 9000, and other currently popular certification programs focusing on written documentation of procedures, explicit canonical practices have been emphasized even further. Yet, how many times have you been handed a procedure manual, then been told "but this is how it is really done?" In an environment focused on sharing explicit knowledge, tacit knowledge is often ignored, forcing employees to go "underground" to form CoPs.

### How Does Learning Occur in Communities of Practice?

Learning is the process of becoming a member of the CoP. The motivation to learn is the motivation to become a member (Galagan, 1993). Lave & Wenger (1991) term it "situated legitimate peripheral participation," because learning must occur in the context where it will be used (*situated*), allowed to occur (*legitimate*), and new members learn from watching and practicing from the edges of the group (*peripheral participation*). This situated legitimate peripheral participation occurs through several mechanisms.

#### Newcomer to Old-timer

In a healthy CoP, old-timers (masters of the practice) allow newcomers to engage in legitimate peripheral participation. As the individual becomes an "insider," acquiring the community's viewpoint, language, and culture, learning occurs (Brown & Duguid, 1991). Over time, the member moves closer to the center of the practice, having become increasingly enculturated. This moving toward the center of the community occurred in the Yucatec Mayan midwifery

example. Proximity to the center is not, however, measured only in terms of time spent or position occupied. Also important is the idea of becoming expert in whatever it is that the community practices (Drath & Palus, 1994).

Paradoxically, there are contradictory interests for participants in CoP. Participants want to learn from the practice of oldtimers while eventually displacing them (Lave, 1992). Perhaps this conflict is one of the reasons for dysfunctional communities; oldtimers may fear being displaced, and refuse to share information with others. In order to facilitate this sharing, the organizational culture must be supportive and rewarding of it.

### Narration

One way that the progression from newcomer to old-timer occurs is through storytelling. Stories work as a useful, flexible way to interpret each new situation in the light of accumulated knowledge and constantly changing environment. Using the copier tech example again, he or she can get a better picture of the problem by asking users what happened before the problem, and during the problem, and combine that information with his or her own observations. The story that has been constructed can then be shared with other techs, who would work together to discover a solution using their old stories as guides. Ultimately, this “war story” is then shared with others in the CoP, to be used in solving future problems. Narration serves two functions for the CoP: diagnosis and preservation (Brown & Duguid, 1991).

### Collaboration

Another method used in the process of transforming the newcomer into an old-timer is collaboration. Despite the fact that most corporations view and reward work individually, work is almost always collaborative in some way (Brown & Duguid, 1991).

Some of the collaborative processes that CoPs engage in include identifying vision and mission, framing problems, setting goals, arguing and engaging in dialogue, theory-building and testing, storytelling, and the making of contracts and agreements (Drath & Palus, 1994). Many of these collaborative ideas are similar to the disciplines of the learning organization that Senge (1994) espouses, but with more of a focus on the informal occasions in which they occur.

### Enculturation

Enculturation is the pivotal mechanism for creating situated legitimate peripheral participation. As people work together, they develop a shared sense of what has to happen to get the job done, a common way of thinking and talking about work, and a shared identity (Stamps, 1997). Therefore, learning is viewed not only as the acquisition of knowledge, but the process of enculturation (Mandl, Gruber, & Renkl, 1996). This sense of culture and socialization is striking for the newcomer going to a job for the first time. Learning whom to go to for what, what different words mean, and the hidden “rules” of the group are part of the process of moving from a newcomer to an old-timer.

## Identity

As we engage in a CoP, we are learning and innovating. As learning occurs, the ability to participate in the world changes. The old-timer becomes a newcomer. As this shift occurs, our identities change, as well. For example, in the academic world, a newcomer's identity (student) may change to graduate (knowledgeable), to researcher (more knowledgeable), to professor (old-timer, able to teach others). Additionally, by telling stories, the individual constructs his or her own identity as a member of the CoP while constructing identity of CoP as well (Brown & Duguid, 1991).

## Tension Between Boundaries of Communities of Practice

Another mechanism through which both learning and innovation occur is through dealing with the boundaries of different CoPs. Learning occurs both when a single person involved in multiple CoPs has to adjust to incorporate all of them, and when people from different CoPs experience friction between boundaries.

One person as a member of many CoPs learns from each and has to deal with each. Since learning in a community of practice involves the changing of one's identity, a person involved in multiple CoPs incorporates pieces of each, which are then fed back into all of the CoPs, changing the CoPs, and so on. Members and CoPs as a whole iteratively influence each other, each building and modifying the changes of the other. Thus, learning occurs, at both the individual and CoP levels.

Friction may occur between members of different CoPs at the boundaries of the groups. Often this is where new solutions and innovation occur, in response for need for common resources and because of the multiple viewpoints in each CoP. Learning means dealing with boundaries – living the tension of those boundaries is itself a learning process, and boundaries between practices are fertile grounds for innovation (Wenger, 1996b).

### Why Does Learning Occur in Communities of Practice?

According to the viewpoint of CoPs, learning is less about absorbing information than it is about becoming part of a community – a social process built around informed participation. People need information to do their work, but it is only through working that they get the information they need (Brown & Gray, 1995). Several guiding principles support the CoP viewpoint.

## Learning is Inherent in Human Nature

The first assumption is that learning is inherent in human nature – it is not a separate activity (Wenger, 1996b). Humans naturally want to learn; they do not have to be forced to do so. They will naturally strive to discover more about that which they are interested.

### Learning and Work are Fundamentally Social

Learning is about work, work is about learning, and both are social. The social world is a rich resource, not a distraction (Brown & Gray, 1995; Stamps, 1997; Wenger, 1996b). Lave & Wenger (1991) believe that social practice is the primary, generative phenomenon, and learning is one of its characteristics. Thus learning should be analyzed as an integral part of the social practice in which it is occurring. To change or improve learning, one should reorganize the social practice.

### Communities of Practice Harness Natural Energy

Since learning is inherent in human nature and learning and work are fundamentally social, it seems natural to emphasize these forces in communities of practice. CoPs emphasize these natural tendencies, instead of fighting them as traditional classroom training models (e.g. sharing information in school is cheating) do. In professional work, especially, workers already form informal networks for sharing information, forming CoPs of their own accord.

### Communities of Practice Tap into Tacit Knowledge

One of the keys to survival in the knowledge era is to utilize previously ignored tacit knowledge. CoPs tap into this “know-how” through enculturation and story telling.

The more you explore real work, the more you appreciate the power of a different kind of knowledge: tacit knowledge. With individuals, tacit knowledge means intuition, judgment, and common sense – the capacity to do something without necessarily being able to explain it. With groups, tacit knowledge exists in the distinct practices and relationships that emerge from working together over time – the social fabric that connects communities of knowledge workers (Brown & Gray, 1995, p. 78).

### Learning is Situated

A major assumption of CoPs is that learning is fundamentally situated in social, physical, and temporal settings. Learning is not simply a transfer of knowledge, but a process of building understanding (Galagan, 1993).

In a society that attaches particular value to “abstract knowledge,” the details of practice have come to be seen as nonessential, unimportant, and easily developed once the abstractions have been grasped. Practice is central to understanding work, and abstractions detached from practice cannot be well understood, taught, or enhanced through innovation (Brown & Duguid, 1991). Could the practice of Yucatec Mayan midwifery have been learned in a classroom out of a book? It is unlikely. Taken out of the situation, practices are extremely difficult to learn.

### Social Construction

Another aspect of CoPs is social construction of knowledge. Since there is no way to determine what is ultimately real, the best we can hope for is to make arrangements in our minds that create coherence out of our experience (Bruner, Finagarette, Goodman, Kegan, Piaget, as cited by Drath

& Palus, 1994). Understanding is constructed out of a wide range of materials that include the social and physical environment, and histories of the people involved (Brown & Duguid, 1991). From a radical constructivist viewpoint, knowledge is not a “representational copy” of reality or the ontological world. Thus, the body of knowledge held true in a CoP is nothing more than a shared belief system. From this perspective, even the so-called cognitive aspect of learning – that is, the acquisition of knowledge – is nothing more than learning to accept socially shared beliefs and practices. The acquisition of expertise is thus not the acquisition of declarative and procedural knowledge, but more broadly the social process of enculturation (Mandl, Gruber, & Renkl, 1996).

### Why Are Communities of Practice Important?

Effective CoPs are beneficial to organizations. This viewpoint seems to be a better frame for dealing with the learning and innovating in the knowledge era than traditional training methods. Finally, there is converging support for CoPs.

#### Benefits of Effective Communities of Practice

Effective CoPs provide the backbone for the successful organization. Some of the benefits of CoPs include increased organizational flexibility, organizational learning, innovation, and personal benefits.

Increased organizational flexibility. CoPs help to avoid ossifying tendencies of large organizations through their constant iterative process of practice and identity. CoPs also serve to bridge the gap between their organization’s static canonical view and the challenge of changing practice. Since the canonical view is typically slow to change, an effective CoP moving to fill the gap between the canonical and desired performance is a must for organizational flexibility. The organic qualities of CoPs allow them to grow and adapt quickly.

Organizational learning. The knowledge era calls for a different kind of organizational structure, one that focuses on knowledge as a valuable resource. Brown and Gray (1995) believe that CoPs are the critical building blocks of a knowledge-based company. CoPs enable organizations to learn from their successes and failures, and incorporate these learning’s back into the communities.

Innovation. Because CoPs, like enacting organizations (Daft & Weick, as cited by Brown & Duguid, 1991), involve processes of interpretive sense making and controlled change, innovation results. The diversity of members within and between CoPs allows for the production of synergistic new ideas. Dealing with boundaries between different CoPs, discussed previously, also facilitate innovation.

Personal benefits. Members of CoPs generally enjoy their jobs more as they have more freedom and learning opportunities. They also gain knowledge that they can use in their own, or other, organizations.

### Traditional Training versus Communities of Practice

In traditional forms of classroom training, students often acquire inert knowledge. This inert knowledge can be used in instructional settings, but cannot be transferred to the complex problems typical of everyday or professional life (Mandl, Gruber, & Renkl, 1996). The result is a dichotomy between learning and working. Additionally, learning theorists (e.g. Lave 1988; Lave & Wenger 1990, as cited by Brown & Duguid, 1991) have rejected transfer models, which state that learning occurs with the transmission of explicit, abstract knowledge from someone who knows to someone who does not, in any learning setting.

The CoP model, in contrast, emphasizes the importance of situating learning by putting knowledge back into the contexts in which it has meaning. Therefore, training becomes, not just a matter of designing courses, but a matter of facilitating participation and supporting learning communities (Wenger, 1996b).

### Converging Support

Research and anecdotal evidence support the idea of CoPs. First, the adult learning model, which emphasizes experiential learning, is more congruent with CoPs than with traditional classroom teaching. Second, research supports the idea of CoPs as a more accurate view, since it is a more dialectical theory than traditional views (Spender & Grinyer, 1996).

Finally, the training profession's own masters have for years voiced ideas similar to some of the tenets of CoPs. Stamps (1997) cited some of these similarities. Knowles (as cited by Stamps, 1997) once said that much of the expertise one seeks to develop in a group of adult learners usually resides in some or all of the group members themselves. The CoPs viewpoint is similar; the knowledge is there, it is simply a matter of sharing and creating it as a group. Gilbert (as cited by Stamps, 1997) suggested that the way to discover master behaviors is to observe the masters directly while they work, just as newcomers watch old-timers in CoPs. Mager (as cited by Stamps, 1997) proposed that training needs to be lean and elegant, focused on the skills people need, not extraneous material others think would be good for them. The CoPs approach would coincide; members of the CoP only focus on the information that suits their interests and purposes. The last point that Stamps (1997) cited was that the way people actually acquire skills is by practicing, not by being lectured at. This idea is at the core of the CoPs viewpoint as learning occurs through legitimate peripheral practice.

### What Happens if Communities of Practice are Disrupted?

The disruption of CoPs threatens the survival of the organization in two ways (Brown & Duguid, 1991). First, it threatens to destroy the working and learning processes by which it, knowingly or not, survives. Second, it cuts itself off from a major source of potential innovation that inevitably arises in the course of that working and learning. So, the organization must view itself as a community-of-communities, acknowledging the noncanonical processes and legitimizing and supporting the activities that members must conduct in order to further develop the community.

The next section will overview some methods and principles for supporting a community-of-communities.

### How are Effective Communities of Practice Supported?

Before moving to supporting effective CoPs, what are the conditions that facilitate CoP effectiveness? By effective, I mean a group that learns through having a strong culture, good or bad. While the focus of this paper has been the positive results of CoPs, the results of CoPs (e.g. gangs) may be considered negative, as well.

Lave and Wenger (as cited by Engestrom, 1991) cite some conditions under which CoPs are particularly effective. It is important to strive to support these conditions in order to have proficient CoPs. Learning is particularly effective when participants have broad access to different parts of the activity and eventually proceed to full participation in core tasks. Another condition is the abundance of horizontal interaction between participants, mediated especially by stories of problematic situations and their solutions. Finally, when the technologies and structures of the CoP are transparent, that is, their inner workings can become available for the learner's inspection, learning is particularly effective (Brown & Duguid, 1991).

The following is a list of ways to support CoPs. It is important to note that this is not a "cookie cutter" approach that any organization can use and find success; the ideas must be tailored to each organization. There is no one best way when it comes to CoPs.

#### Detection and Recognition of Communities of Practice

Before they can be effectively supported, CoPs must be detected. They are not extremely difficult to find – just look in the hallways or lounges for informal discussions between individuals with common interests. Once CoPs are detected, support their activities, but mainly try to stay out of the way. "Fertilize the soil, but stay out of the garden" (Stewart, 1996). Reorganization into canonical groups can unwittingly disrupt these invisible noncanonical CoPs. After detection, recognition and legitimization of community practices are important (Brown & Duguid, 1991). For example, allow the informal conversations to occur, and even show public support for them.

#### Align the Organizational Environment to Support Sharing Knowledge

Build a culture that supports sharing knowledge (McDermott, 1997). This does not mean that the current culture has to be totally disregarded; instead, build on the culture that already exists. Culture change is difficult, and quick dramatic culture change is next to impossible. Culture change cannot just be lip service – it must be supported and modeled throughout to work.

Additional aspects of the organizational environment include organizational support systems, such as rewards, performance evaluations, and manager support. If these systems are counter to sharing knowledge, sharing knowledge will not occur. The manager's role in supporting CoPs will be discussed later.

#### Give Them the Resources and Tools They Need

Allow CoPs to have the resources they require, such as an intranet, money, meeting space, and time. Additionally, provide them with some tools to make tacit practice visible. Some of these tools include video analysis, observation techniques, work representation and simulation tools (Galagan, 1993). By discovering their social learning habits, CoPs can capitalize on and strengthen them.

### Information Systems and Communities of Practice

While virtual tools can facilitate collaboration, they do not create it. Face-to-face rapport is required before real collaboration can occur (Stamps, 1997). However, used properly, information systems can be effective tools in supporting CoPs. Some guidelines and examples to consider in using information systems to support CoPs are provided below.

Create integrated human and information systems. Use information technology to support the human community, not the other way around (McDermott, 1997).

Integrate information retrieval and documentation in to the natural flow of work. Professionals often feel that gathering and documenting information are tedious activities separate from their real work. Instead of creating separate processes of documentation, integrate documentation into the natural flow of work (McDermott, 1997).

Do not assume that because the technology is there, it is being used. You can not assume that, just because technology to support circulation is available, information is circulated freely (Feldman & March, as cited by Brown & Duguid, 1991).

Develop a community memory. A community memory can provide the crucial bridge between large-scale information bases and the day-to-day activities of a community's members. Community memory will help cull and shape the structure and contents of the collection to meet more particular needs. To be useful and usable, community members need support for the acquisition and evolution of content and structure, the identification of materials and community members relevant to a particular task, and the maintenance of an organized structure that is mutually intelligible across the community (Marshall, Shipman, & McCall, 1995). (Please see Marshall, Shipman, & McCall (1995) for further details on making information resources serve communities of practice.)

Example virtual tools created to support communities of practice. PARC created an electronic "knowledge refinery" called Eureka that organizes and categorizes a database of tips generated by the field staff (Brown & Gray, 1995). This is a relational database of hypertext documents. It provides an electronic version of war stories, with added benefits of expert validation (by fellow community members), and a search engine. Participation relies solely on voluntary information exchanges; no requirements or explicit rewards exist. The implicit reward is social capital: the incentive to be a good colleague, to contribute and receive knowledge as a member of the community.

Another virtual tool, used by Xerox, is called Project Jupiter. This is a network “place,” rather than an electronic space, where people interact as a community. It uses “virtual social reality” via a collection of audio, video, and communications technologies, to help communities form and flourish. Project Jupiter provides context as well as content as different programmable “rooms” and “objects” evoke different behaviors (Brown & Gray, 1995).

### Leadership in the Community of Practice

Leadership in the CoP is different from traditional command and control leadership models. The traditional perspective views leadership in terms of dominance and influence. In the CoP frame, leadership is seen as a social meaning-making process that occurs in groups of people who are engaged in some activity together. Leadership is the process through which people put tools (authority, norms, values, work systems) to work to create meaning (Drath & Palus, 1994). Instead of a generic force that the “leader” can apply, leadership is part of a context, a process that arises in various forms and with various effects whenever people attempt to work together. Anyone in the CoP can be part of the leadership process, not just the canonically recognized leader or manager.

There are several important questions to be asked in the framework of this more participative and facilitative leadership style. How can the contribution of each person in the CoP be made increasingly important and increasingly appreciated for its importance? What is the most effective way for this community engaged in this particular practice to make sense of our situation? It is a shift in perspective from “I need to make things happen” to “we need to make things happen and I need to figure out how to best participate in the process of us making things happen” (Drath & Palus, 1994).

### Manager’s Role in the Community of Practice

Since an important characteristic of CoPs is that they are emergent, managers should not try to gain control, they should surrender it (Brown & Gray, 1995). Instead of directing the CoP, the manager should support it, in the ways mentioned previously in this section. Additionally, since the CoP viewpoint assumes people are naturally in motion (Kelly, as cited by Drath & Palus, 1994), they need, rather than motivation to act, frameworks within which their actions make sense. Instead of a directive leader, the manager is simply a player in the leadership process.

## Conclusion

### Implications of Communities of Practice

The tenets of CoPs have interesting implications for other areas of organizational development. This next section will touch upon a few of the areas where CoP learning’s can be applied, and expound upon how application might take place.

Work teams. Characteristics of CoPs are strikingly similar to the effective team characteristics referred to in the literature. Work teams, like CoPs, utilize processes such as goal setting, and dialogue. The main difference seems to be the emergent quality of CoPs versus the formalized

aspect of work teams. It would be interesting to compare measures of learning and innovating in work teams and CoPs to see if any significant differences occur. Nevertheless, increased study of CoPs may reveal more interesting similarities and provide insights for the practice of work teams.

Team-based organizations. Recent work by Mohrman, Tenkasi, and Mohrman, Jr. (1997) found that one of the weaknesses of team-based organizations is lack of deep-discipline knowledge. In the pursuit of becoming teams and learning team behaviors, the depth of functional knowledge is compromised, perhaps due to the disruption of CoPs that were in place before the move to teams. Perhaps tapping into the idea of CoPs could be an answer to retaining and building the functional knowledge again. In pursuit of this idea, McDermott & de Merode (1997), suggest creating double-knit organizations, where both project teams and learning communities (CoPs) work side by side. Project teams could retain the benefits of teams, such as increased communication and cycle time for the product, while the CoPs could help in building deep functional knowledge. The possibility of using the two structures together needs to be explored further.

Organizational change. One of the tenets of CoPs is that identities of both the member and the CoP change as learning occurs. As communities change, so does the practice and participation of its members. Therefore, organizations can be seen as webs of participation. Change the patterns of participation, and you change the organization (Brown & Gray, 1995). The implication for organizational change is that small change could potentially lead to large results, as the changes get amplified over time (much like chaos theory -- see Merry, 1995).

Organizational design. For organizational design, CoP ideas suggest that the gap between espoused and actual practice needs to be closed by reconceiving of organization as community-of-communities. (Brown & Duguid, 1991). This can be done by developing architecture to preserve and enhance the healthy autonomy of communities, while building an interconnectedness through which to disseminate the results of separate communities' experiments, via stories and narratives (Brown & Duguid, 1991). It is important to legitimize and support the myriad enacting activities perpetuated by its individual members, without being intrusive.

Perhaps the cellular organization (Miles, Snow, Mathews, & Miles, 1997), will be effective for achieving this architecture. "The cellular metaphor suggests a living, adaptive organization" (p. 10), one that can act as a single cell, or combine with other cells to perform more complex functions. In the cellular organization, each cell (e.g., team, business unit, firm.) has a responsibility to the organization, and the organization is fluid enough to continually reorganize to meet organizational needs. The customer of a particular cell can be outside clients or other cells. Cells can combine together to work on projects, if necessary. The cellular organization allows a combination of independence and interdependence that should foster CoPs. Another organizational design that may be effective for supporting CoPs is the double-knit organization, discussed previously.

Facilities. Since CoPs learn primarily through informal means, it makes sense to create facilities to foster these informal learning opportunities. Small lounges, traditionally thought as places to "waste time," really are where much learning occurs (Wenger, 1996b). Open offices facilitate the peripheral participation (via observing old-timers) that newcomers need to gain expertise in the practice.

Training programs. One of the key implications for CoPs is in the area of training programs. Traditional classroom lectures are rarely, if ever, useful, according to the CoP view. Real learning only occurs when practice transpires. However, there may be some cases where classroom teaching is appropriate. Involving workers and managers directly in the training design process, while utilizing more on-the-job practice and less classroom time, will help to ensure that training is appropriate to meet the needs of the CoP (Stamps, 1997).

Using CoPs does not mean that organizations should do away with training departments. Instead, the corporation must provide support for the real needs of the community rather than abstract corporate needs. Trainers must endeavor to understand details of actual practice in order to be effective (Brown & Duguid, 1991).

### Limitations of Communities of Practice Ideas

The many implications of CoPs suggest that there is much to be learned, and used, from these ideas. However, some weaknesses in the theory, as well as the need for more study of them, endure.

Does not match American culture. At the core of the CoP idea is the open sharing of information. This sharing and openness runs counter to the individualism enculturated into Americans. CoP ideas are more collectivist than the American “watch out for number one” mentality. This “me first” mentality may hinder efforts to truly become a CoP.

No research done on potential problems. Some proponents of the CoPs view admit adopting this perspective will cause problems for conventional organizations that, for example, use traditional formal descriptions to hold people accountable (Brown & Duguid, 1991). Further research needs to be done to discover what potential problems might occur, and how they might be overcome.

Difficult to change traditional thinking. There still is a huge gap between learning theory and common training practice. Even ideas that clearly make sense, like some of the CoPs ideas, are not implemented, or they are implemented, then changed later, leaving resistance for further change in the organization. For example, when Xerox wanted to integrate customer service departments, training professionals predicted 52 weeks of classroom training needed for each person. Researchers suggested implementing some of the CoPs ideas could dramatically shorten that time. After agreeing to try the CoP approach, the customer service representatives were relocated to a shared workspace, where small groups could be in constant contact with each other. They could teach each other how to do their jobs, and take customer calls from the start, putting into practice what they had learned. The pilot test commenced, despite groans from the training department. The workers were exhilarated by the challenge of doing something new and different, and they taught their jobs to each other extremely well. They described it as nonstop learning – always listening to others on the phones, picking up tips from each other. However, despite the success of the pilot phase, the project was discontinued, due to traditional thinking and money shortages. Sometimes “these emergent ideas run so contrary to traditional approaches to worker training that even forward-looking companies like Xerox can expect to encounter slow going when they attempt to put them into practice” (Stamps, p. 38).

A community of practice theory is difficult to operationalize. While the ideas of CoP theory sound good, and can be pointed out in operation, it is difficult to operationalize. Lave and Wenger admittedly are vague in their analysis of social practices. Without more definition, this may turn out to be just another nice theory to rest in the world of journals, along with all the other faded ideas.

Additionally, in the wrong hands, their approach could easily be turned into just another theoretical legitimization for building technology-intensive microworlds in schools without serious consideration of the meaning of those worlds in the lives and social circumstances of the participants (Engestrom, 1991). The participative nature of CoPs cannot be ignored; one cannot wave a wand and make a group a CoP, the CoP must emerge. The only thing that managers can “do” to help it happen is to set up the supporting environment where they may emerge.

The “social fabric” of communities of practice is useful way of reframing learning from traditional theories, but there is still quite a bit to be understood. At least CoP ideas recognize the invisible, tacit part of knowledge that is blatantly ignored in traditional models. Since it is invisible, new methods for study are needed to learn further. Using the CoP framework allows us to dive deeper than we had previously able to swim in the deep ocean of complexity that is learning and innovation, but we have barely touched the surface.

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