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COMMUNITIES OF PRACTICE AND THE ROLE OF LOCATION: REVEALING LIMITS OF VIRTUALITY AND KNOWLEDGE

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Abstract

Communities of practice provide a lens for understanding how knowledge develops and flows in organizations. This perspective highlights how, as a result of shared practice, knowledge flows more easily within a community than across community boundaries. Most prior empirical studies identify communities of practice whose members have similar occupations and thus emphasize knowledge boundaries that are congruent with occupational boundaries. In this paper, we argue that location also shapes practice and thus plays a critical role in defining knowledge boundaries. We use a case from a multinational organization to show that the common work practices, perspectives, and knowledge operational within one organizational location were not shared by employees at other locations. We suggest that, by reemphasizing the often overlooked unity of work, knowledge, and identity existing among functionally diverse, collocated organizational members, while simultaneously drawing attention to knowledge differences emerging between functionally similar members in different locations, this use of the communities of practice lens reveals the limits of virtuality when knowledge creation is at stake.

Keywords: Communities of practice, knowledge, location, virtual work, case study, manufacturing sector

1 INTRODUCTION

The concept of a community of practice has emerged as a useful lens for understanding how knowledge develops and flows in organizations. Communities of practice develop as people united by a common endeavour interact with each other, acquiring both shared work practices and shared knowledge in pursuit of that endeavour. This focus on knowledge and work emphasizes how knowledge exchange is enhanced among members of the same community (Brown and Duguid 1991; Lave and Wenger 1991; Stewart 1996), but also highlights how divisions of knowledge form as a result of the division of work and thus create boundaries of knowing and doing between different knowledge communities (Bechky 1999; Brown and Duguid 2001).

Communities of practice have been differentiated from other types of organizational groups; however, relatively less attention has been paid to differences among communities of practice. Yet characterizing and categorizing their differences can assist in identifying new types of communities of practice, thus highlighting where, in an organization, these knowledge boundaries occur and hence where more attention and effort will be needed in order to share knowledge effectively. This paper draws from prior empirical studies of communities of practice to frame a two-dimensional typology. In doing so, it identifies the location-based, multi-occupational community as a type of community of practice that has not yet been explicitly discussed. Conceptual support for associations between location and, respectively, identity, work practice, and knowledge, is provided from different fields of organizational study. We suggest that a community of practice view can integrate these separate relationships and explain their emergence. As empirical support for our position, we present a case study of one organizational location of a multinational firm showing that, despite being engaged in diverse occupations and tasks, organizational members at this location demonstrated characteristics typical of a community of practice. That is, they engaged in mutually interdependent work practices, perceived

and pursued a common purpose, and drew from a shared repertoire of resources to do so (see Wenger, 1998). As a result of these shared practices, the community developed location-specific knowledge distinct from that of other organizational locations.

This use of the community of practice lens illuminates organizations as consisting of multiple, overlapping, occupation-based, and/or location-based. It both highlights the valuable location-specific learning that occurs outside of formal task-based or organizational control structures and also draws attention to location-based knowledge dependencies likely to confront organizational groups that, ostensibly, transcend geographic boundaries. As such, it reveals limits to virtual work when knowledge creation is paramount.

2 CHARACTERIZING AND CATEGORIZING COMMUNITIES OF PRACTICE

A community of practice is a group of practitioners “informally bound together by shared expertise and passion for a joint enterprise” (Wenger and Snyder 2000, p. 139). A community of practice—as differentiated from other kinds of communities and groups—manifests coherence among three dimensions of its practice: a *joint enterprise*, the *mutual engagement* of its members, and a *shared repertoire of resources* (Wenger 1998). The enduring nature of the joint enterprise distinguishes a community of practice from teams or taskforces, which focus on specific and/or temporary problems. Members collectively refine their practice—their competence in a particular enterprise—as they interact with each other in support of that enterprise they all perceive as worthwhile. Although members’ mutual engagement is, to some extent, dependent on specific places and times (Wenger 1998, p.131), information and communications technologies (ICTs) can enable interaction when community members are physically separated (e.g., Faraj and Wasko 2002; Robey et al. 2000; Teigland and Wasko 2000). In developing common solutions to mutual problems, community members develop a repertoire of tools, techniques, and language, thus building a community history as well as acquiring particular value systems, ways of talking and ways of doing things (Drath and Palus 1994). For example, ICT-based communities, such as those studied by Wasko and her colleagues (Faraj and Wasko 2002; Teigland and Wasko 2000), use electronic conferencing bulletin boards, distribution lists, and/or websites to interact and learn from each other. In doing so, their members become proficient in using electronic symbols and technology abbreviations, which have clear meanings for community members but may be unfamiliar to non-participants. So a community’s repertoire of conceptual and physical resources both facilitates engagement among its members and inhibits knowledgeable engagement across its boundaries.

Central to the notion of a community of practice is its role in facilitating *learning* and *identity formation* as part of the normal course of accomplishing work (Brown and Duguid 1991; Lave 1991; Wenger 1998); this distinguishes a community of practice from an interest group or social group. Members’ shared undertaking exposes them to similar problems, but through discussion and interaction they discover each other’s past solutions. Thus communities of practice include both newcomers and oldtimers who demonstrate varying degrees of experience and competence in the practice (Wenger and Snyder 2000). Newcomers participate in peripheral but legitimate ways (Lave and Wenger 1991) from the moment they join in the community. For example, research on electronic communities shows that it is the more experienced, longtime members who both read and post messages, while many members only read messages; merely reading, or “lurking,” is an accepted form of participation (Wasko and Faraj 2000). As individuals learn to become competent—and to be socially recognized as such—within their community, they simultaneously develop their identity as fully-fledged members of that community, identifying more strongly with their own role, other members, and their joint enterprise (Brown and Duguid 2001).

Having established the essential characteristics common to all communities of practice, we now consider how they differ. A review of prior empirical studies suggests two prominent dimensions of variation among communities of practice: the degree of occupational diversity represented in the community and the degree of geographical dispersion among its members. Most early studies identified highly localized, single-occupation communities of practice whose members shared similar occupations or roles. Examples include studies of the work and knowledge of tailors and midwives (Lave and Wenger 1991), nurses (Wenger 1996), medical claims processors (Wenger 1998), photocopier repair technicians (Brown and Duguid 1991; Orr 1990), and engineers, technicians and assemblers (Bechky 1999). In these settings, community members work in close proximity to each other, learning and acquiring competence through direct interaction with and visible demonstrations of work by more experienced members.

Researchers have also identified communities of practice having more geographically dispersed configurations but whose members still share similar roles. Such communities may emerge—or are cultivated—within organizations. An example is the wider Xerox community of photocopier technicians who learned to resolve copier problems by drawing on past experiences of other technicians, which were documented and catalogued for retrieval from a searchable knowledge-based system (Brown and Duguid 2000). Individuals also learn by participating in communities spanning multiple organizations, as in academic disciplinary

communities (Knorr-Cetina 1999) or professional, electronic communities (Faraj and Wasko 2002; Teigland and Wasko 2000). Although the aspect of *community* can be debated based on the degree and depth of mutual engagement and/or the existence of a joint enterprise in dispersed settings (cf. Brown and Duguid 2001; Wenger 1998), these studies do show, nonetheless, that such communities provide an avenue for acquiring knowledge to resolve members' mutual problems (Faraj and Wasko 2002; Wasko and Faraj 2000).

Since practice emerges from members' interdependent work, rather than from the activities of individuals merely performing the same task (Brown and Duguid 1991), community membership needn't imply occupational homogeneity. Organizational researchers have also found the community of practice lens helpful for understanding learning that occurs among dispersed employees having different occupations but who work collectively on ongoing tasks. For example, Robey et al. (2000) conceptualized virtual customer support teams as communities of practice when their research revealed that these teams learned new work practices that were situated with respect to their virtual status.

This brief summary of examples from the community of practice literature shows that occupational diversity represented in a community can range from a single occupation to the incorporation of multiple occupations. Furthermore, the geographical dispersion of community members can range from collocation in one location to dispersion across multiple locations. Examples have been mapped onto this two-dimensional typology, shown in Figure 1. This categorization process reveals an empirical gap in one of the four possible combinations, prompting inquiry as to whether such a configuration is feasible in reality or only in theory. Subsequent sections address this question.

		Dimension of Occupation	
		Single	Multiple
Dimension of Location	Single	<ul style="list-style-type: none"> • Tailors, midwives (Lave and Wenger 1991) • Nurses (Wenger 1996) • Medical claims processors (Wenger 1998) • Photocopier repair technicians (Brown and Duguid 1991; Orr 1990) 	?
	Multiple	<ul style="list-style-type: none"> • Software developers (Teigland and Birkinshaw 1999) • IT consultants (Teigland and Wasko 2000) • Technical newsgroup participants (Faraj and Wasko 2002) • Photocopier repair technicians (Brown and Duguid 2000) 	<ul style="list-style-type: none"> • Customer support teams (Robey et al. 2000) • World Bank communities of practice

Figure 1. A Typology of Communities of Practice

3 CONCEPTUAL SUPPORT FOR A LOCATION-BASED, MULTI-OCCUPATIONAL COMMUNITY OF PRACTICE

Although location-based, multi-occupational groups have not yet been explicitly discussed as communities of practice, research from various fields of managerial study and different theoretical perspectives indicates that location-based groups in organizations exhibit many of the characteristics defining communities of practice and offers some arguments for how and why different locations engender different knowledge. For example, evidence of relationships between location and purpose and identity are offered from organizational identity and culture studies. Research shows that membership in a particular subunit of an organization can influence members' perceptions of what is central, enduring, and distinctive about what they do (Fiol 1991), while distinct organizational sub-identities can develop based on geographical location (Fiol 1991; Gustafson and Reger 1999). Relatedly, an

organization may manifest “fragmentation” of its values and purpose, prompting both consensus and conflict among different subunits (Martin 1992).

As practice evolves to accomplish real work effectively, it adapts to local constraints and takes advantage of local resources and opportunities, often ignoring or neglecting formally prescribed company-wide procedures (Brown and Duguid 1991; Orr 1990). Additionally, since resources—especially concrete resources such as tools, equipment, and materials—form part of the physical setting, these can easily vary from location to location, and thus encourage different local assumptions about how work is or should be accomplished. In this way, different practices and resources for that practice can develop in different locations.

Studies of invention, innovation, and product development show that (occupationally similar) colleagues working in close proximity interact more frequently and, in doing so, learn from each other (Allen 1977; Kraut et al. 1990), while cross-functional groups who work closely and interact frequently accomplish developments more efficiently (Brown and Eisenhardt 1995). In contrast, however, Dougherty’s (1992) research highlights that different functional backgrounds form distinct “thought worlds,” which determine what people know, shape how they learn, and—critically—often hinder understanding between members of different functional groups engaged in a joint task. Similarly, Boland and Tenkasi (1995) note that specialized knowledge communities develop resources (a shared vocabulary, specialist language, and narratives) that reinforce knowledge sharing and identity within that community but can hinder knowledge exchange with other knowledge communities in the organization. These findings offer mixed messages regarding the likely nature of engagement among collocated but occupationally-diverse individuals and the extent to which this engagement will promote learning and competence.

Other knowledge-based views of organizations highlight how collocated colleagues, through sustained systematic interaction, develop collective tacit knowledge about “how things work around here,” enabling them to act together efficiently and effectively (Badaracco 1991; Kogut and Zander 1992; Levitt and March 1988; Nelson and Winter 1982). These perspectives do not, however, directly address the implications of that tacit knowledge at the boundaries of the collocated group.

We suggest that a community of practice perspective can integrate these various relationships among work practices, identity, and knowledge, explaining both the coherence of knowledge that emerges within a location-based, multi-occupational community and predicting the knowledge contrasts and difficulties likely to emerge at interfaces to that community. We demonstrate this using the case of one geographical subunit in a multinational organization.

4 EMPIRICAL SUPPORT FOR A LOCATION-BASED, MULTI-OCCUPATIONAL COMMUNITY OF PRACTICE

This case describes LOC1, one geographical subunit of “the Company,” a multinational firm that designs and produces polymer products used in a wide range of consumer and industrial applications. The Company employs over 4,00 people worldwide and its revenues exceed \$1 billion per year.

Data for this case were gathered as part of a study exploring knowledge sharing practices in virtual development teams. Sources included 70 semi-structured interviews conducted with informants representing different occupations and levels and drawn from seven different Company locations (sites). Guided by knowledge-location themes emerging from prior literature, part of the interview protocol was designed to elicit information on site-level knowledge issues including the nature of development activities and objectives at an informant’s site; types of knowledge drawn upon during these activities; the nature of knowledge-intensive interactions; and norms of knowledge sharing and collaborative behavior, including typical use of different ICTs in knowledge exchanges, at that site. These data were supplemented by nearly two months of on-site observation, by the first author, in LOC1 and other locations.

Analysis of these interview elements yielded insight into similarities and differences in site identities, bases of knowledge, and norms of behavior. Many interviewees had worked at Company sites other than their current location, and highlighted different perspectives and work practices that existed at the site level by contrasting their current and previous experiences. The idea of the site as a community of practice was particularly reinforced by site newcomers’ comments about becoming familiar with local norms and perspectives and by their sense of being peripheral players for some initial period.

The case is presented in two sections. The first section highlights the internal workings of the organizational subunit to convey the coherence existing among elements of work practices, knowledge, and identity at the level of location. The second section highlights the external interfaces of the organizational subunit, contrasting the practices, identity, and knowledge of LOC1 with

those of other company locations. Subsequently we discuss the implications of these commonalities and contrasts in knowledge and practice.

4.1 Internal Coherence Within LOC1

At LOC1, multiple functions were represented, including design, engineering, manufacturing, technical service, marketing, and customer service. Employees across all of these functions identified as their major object of activity (or *joint enterprise*) the responsive development of new products to meet market and customer needs. This claim was substantiated by LOC1 having a product range significantly larger than most other manufacturing locations in The Company, as well as by being a highly profitable subunit. It was widely perceived as one of the more entrepreneurial of the Company's manufacturing locations; both insiders and outsiders characterized the place as entrepreneurial, flexible, customer-focused, and open to change (*identity*). An LOC1 senior manager recently transferred from another Company location confirmed,

It's a site that embraces change fairly well. People are willing to differentiate products, change the mix on the lines, change manufacturing processes. They're not afraid of new specifications – they're very willing to do that, eager in fact. Eager to change.

The individual identity of LOC1 emerged through expressions of pride in its technical and financial achievements; LOC1 members had been disconcerted when The Company's senior management started aggregating performance results at a level that obscured the individual contributions of different locations.

LOC1's entrepreneurial and independent character was attributed to its historical situation as a lone outpost separated from the parent company on another continent and to its heritage of individualistic early managers. Feeling themselves to be more remote physically and, therefore, as having less easy access to wider company resources, LOC1 members had traditionally relied heavily on each other to "get things done" (*mutual engagement*). The notion of a local community that was open, supportive, and helpful to each other in multiple, informal ways emerged strongly and consistently in interviews. Important work discussions frequently took place in doorways or over lunch. Through helping out on various, informal occasions, LOC1 employees developed a general knowledge of how and where to find particular expertise, equipment, and other resources within LOC1 divisions when assistance was needed (*location-specific knowledge*). The informal network also helped newer members learn the ways of the local organization, as a team leader explained in regard to some of his less-experienced direct reports:

Oh, they just come and ask; it's very open. This building tends to have people with a high level of experience... you have to know the products, the processes and the customers to do development work. Although [they] probably have the least experience, they're plugged in as well as anyone else. They can always ask, "Have you ever done this in the past?"

As meeting customer needs became ingrained as a local priority, LOC1 had developed *work practices* to achieve this. Commenting that the market was interested in results not procedures, one engineer described their development approach as "restrained chaos." The site was proficient at experimenting; people in all levels and positions demonstrated eagerness to experiment and were widely solicited for their participation. Knowing that they could count on the assistance and expertise of those around them as needed, LOC1 members learned to use these avenues when canonical procedures could not address customer requests in a timely fashion. For example, one well-respected engineer described his response to an urgent product sample request received from a customer:

[A development run on production equipment] has to be approved two months in advance. You have to request a schedule, it has to be negotiated. And my customer's saying, "we need it in 3 weeks, I don't care what your schedules and systems are"... So what I'll do is I'll try and override the system in some way, get an exception to the system. I'll try to work through my colleagues and peers—try to get their buy-in—and then work upwards to get management approval to override the system, and to insert the test into the schedule at the last minute.

Another product development engineer concurred, explaining that "although you go through the system, you have to talk to the people as well" in order to meet development schedules. So gradually *competence* in LOC1 came to be evaluated by one's ability to "just get it done, find a way to do it, don't put boundaries on yourself, stretch your (technical and manufacturing) processes as far as they will go."

The emergence of work practices geared toward adaptability and quick responsiveness was both enabled and reinforced by LOC1 having multi-skilled personnel and production assets specifically chosen or designed for flexible functionality (*repertoire of resources*). LOC1 members who used the equipment day after day knew their constraints and capabilities, and thus knew how to “stretch the processes” to achieve what they perceived as important: meeting customer needs (*location-specific knowledge*).

In summary, we found that, despite their different occupations and tasks, LOC1 members identified a common enterprise and engaged in interdependent practices in the accomplishment of productive work toward this enterprise. They identified with and supported each other’s learning in numerous practical ways in pursuit of LOC1’s overall objective. As a result, members developed a shared identity in relation to their work and to this enterprise (cf. Wenger, 1998). Their location-specific work practices produced knowledge situated within LOC1, purposive toward local objectives, and mediated by local tools, techniques, and terminology.

4.2 External Contrasts with Other Locations

Examination of data across the Company sites revealed contrasts in the ways that different locations accomplished similar work activities and in the resources they used to do so. For instance, in the research and development domain, LOC1 favored practical experimentation and firsthand experience while some other locations preferred more theoretical development and conceptual exploration, compared by an LOC1 physicist as follows:

The simple way to describe it is: [They] have the “we will analyze and analyze, the analysis paralysis stuff” before making a decision. Not all the people there are like that, but the culture there just says, let’s do simulation work, let’s do a lot of theory, before we make a move. [Here] on the other hand, it’s more of a cowboy kind of thing, go get it done.

A senior research scientist at a third Company location explained location-specific *practices* as evolving from the different experimental facilities and equipment (*repertoire of resources*) available at the respective locations:

Here, research folk were more experimentalist, they tended to do a lot of labwork, on a small scale, on their own. [At the other site] they’re less lab experimentalists. They’re more involved in paper studies, concepts and ideas. They would not do labwork to evaluate them; they would design a plant or pilot test. It has to do the physical facilities. [Here] it really is a laboratory; there’re lots of individual labs and lab scientists. People at my level worked in the lab everyday. [There] I don’t think they had the facilities nor the atmosphere.... We’ve grown up differently.

In the manufacturing domain, mutual adaptation of practice and the resources sustaining that practice was similarly evident. Since Company locations accumulated different equipment and tools over time, they became specialized in different production techniques, even though they produced comparable products. Production line layouts varied slightly and different equipment was used to accomplish similar effects. One transferee to LOC1, contrasting the overriding manufacturing discipline that prevailed at his previous locations with the flexible product focus he experienced at LOC1, elaborated on how the inherent capabilities of the different production resources shaped work practices at each location:

The reason our discipline [at previous location] was so strict was because our processes weren’t as robust as the processes here.... One fundamental difference is that the raw material we use [here] is made in batch process, and then stored, blended and later given to the plant site to be melted and extruded. [Those other sites] decided many years ago to make polymer in a continuous fashion rather than in a batch fashion. So as they produce the polymer it goes directly to the production line. That creates a sense of urgency about the raw material that you just don’t see if you have a batch process.... Another example is that the ovens that we bake our material in [there] are much shorter and they’re radiant heat rather than air heat. Radiant heat is much more non-uniform than air heat.

Fundamentally the processes are just much more difficult to control.... So [here] they concentrated more of their efforts on developing products and businesses.... [There] we concentrated on “blocking and tackling”; making sure the processes were running at optimum conditions, trying to shave everything out of the process that we possibly could.

Different company locations also developed distinct communication and interaction norms—in terms of style, frequency, and choices of channel—as a result of their varied access to and experience with particular ICTs. For example, some LOC1 members contrasted their own continued reliance on e-mail as a primary communication channel with that of another Company location, which instead explicitly encouraged and valued the use of electronic repositories (LotusNotes™) as the “channel of choice” for information dissemination. These different approaches were ascribed both to the nature of the *enterprise* (e.g., “It’s more part of their mindset, they’re more database focused...maybe because it’s more a research community”) and the available *resources* (e.g., collaborating colleagues lacked easy accessibility and/or skills to use LotusNotes™) of each location.

Pursuit of different objectives at each location meant that people also learned different criteria for evaluating behavior (*location-specific knowledge*). So, for example, we found that an LOC1 old-timer’s “creative, flexible manufacturing response” was initially perceived by newcomers from some other locations as “a lack of discipline.”

As each location’s work practices and its developing use of various resources were guided by its perceptions of its *enterprise* and *identity* within the Company overall, these different practices and resources, in turn, also shape and constrain the enterprise and identity of each location. Thus, the highly flexible equipment and processes developed by LOC1 allowed it to concentrate on its enterprise of customer-focused product development. In doing so, it further refined its capabilities for flexibility and responsiveness. Moreover, LOC1 tended to attract and retain employees comfortable with the level of change that necessarily accompanied these values. In contrast, where historical design constraints had resulted in locations having less robust and flexible processes and tools, their community enterprise was built on maintaining manufacturing discipline and pursuing rigorous conformity to standard operating procedures. As a consequence, such locations also accumulated technical capabilities and human skills incompatible with achieving product innovation on the same scale as LOC1. An LOC1 marketing manager responsible for products produced at multiple locations highlighted the resulting discrepancy in *competences*:

[At LOC1] you can get people involved, they’re excited to learn, especially on process and product developments. There’s a different feel to the place. You’ll often find shopfloor people with degrees, whereas in [another location] there are some who can’t read and write.

Location *identities* emerged in tandem with community practices and competences, and again these differed among locations. LOC1’s identity, defined by its eagerness to experiment, was contrasted with an image of reluctance to experiment at another location where “change was viewed as causing trouble.” An engineer from another location with experience of multiple distributed project teams volunteered that “some sites are different [from] others” and that “LOC1, especially, is more open to new ideas.”

In summary, we noted that, despite having tasks and occupations in common, organizational members from different locations ultimately developed different objectives, identities, knowledge, and competencies as a result of location-specific work practices.

5 DISCUSSION AND IMPLICATIONS

The community of practice perspective adopted in this paper draws attention to practice and knowledge boundaries that coincide with location boundaries and illuminates organizations as consisting of multiple, overlapping communities of practice. The case suggests that the location-based, multi-occupational community of practice, by facilitating recognition and application of knowledge from local resources, provides an unexpectedly favorable context for learning that transcends both specialized knowledge bases and the existence of formal collective tasks. Yet, because colleagues from different locations develop alternate work practices and location-specific knowledge about those work practices, in spite of common work responsibilities, they can also find it more difficult to learn from each other and work with each other.

More particularly, this focus on practice and knowledge reveals dual location-based knowledge dependencies for *virtual work*, despite the fact that virtual organizational forms are commonly targeted in the quest to leverage organizational knowledge *independently of location* (e.g., Townsend et al. 1998). Our acknowledgement of location-based practice and knowledge can thus predict and explain both unexpected advantages and obstacles likely to emerge in virtual teams and other virtual groups. On the positive side, recognition that organizational locations can also function as communities of practice reminds us that virtual team members are simultaneously members of such location-based communities. As such, they possess awareness of their local colleagues’ expertise, experience with concrete and abstract resources in their immediate setting, and an understanding of local practices and priorities, all of which should make them adept in using their own local communities and local practices as supplementary sources of expertise and support. When a virtual team struggles with a specific problem, individual members, by

simultaneously being members of a local community, can effectively leverage additional conceptual and practical help from their local colleagues to solve it. Thus, a virtual team develops the unexpected advantage of being able to draw on additional practical skills and physical resources—beyond the expertise of the official team members—from the various locations in which its members are embedded (Sole and Edmondson 2002).

On the down side, however, the contrasts in practice, knowledge, and identity across organizational locations, exposed by the community of practice lens, also highlight interesting repercussions for virtual teams. Unshared objectives, terminology, techniques, and knowledge hinder the development of sufficient common knowledge necessary as a basis for discussion (cf. Cohen and Levinthal 1990; Szulanski 1996) and, because these elements of local work practice tend to be taken for granted, they are also rarely discussed explicitly among dispersed colleagues (see Cramton 2001; Stasser and William 1987). Thus virtual team members can develop patterns of working and expectations of each other that are incongruent, even among members who share an occupational background, making it difficult to effectively integrate the team's potential wealth of expertise. Team members unfamiliar with the nuances of work practices at remote settings are apt to misunderstand their remote colleagues' priorities or make unfounded assumptions about their work contexts (Cramton 2001; Sole and Edmondson 2002). These miscommunications of knowledge across location boundaries can persist for substantial periods of time, particularly when interacting members assume they have a better understanding of each other's local practices and knowledge than they actually have (Sole and Edmondson 2002).

Since these overlapping communities both reinforce and undermine the flow of knowledge within an organization, and particularly in virtual work settings, management should develop complementary policies that balance these influences in order to use available practice-based knowledge effectively. Since coherent location-based communities and practice offer knowledge benefits for both localized *and* virtual activities, these should be reinforced through encouraging broad, informal communication and interaction across functions within locations. Further, awareness of location-based differences may be promoted by documenting and comparing location-specific resources—such as frameworks, techniques, equipment, and key specialists—in a central electronic index. The very nature of practice-based knowledge, however, makes it difficult to capture and categorize fully. The community of practice perspective shows that learning about an occupation requires interacting and participating with other members engaged in that occupation. Similarly, we suggest that acquiring insight into location-based practice and knowledge is best achieved through participation and direct experience in that location. Managerial responses might, accordingly, support periodic inter-location movement of representative personnel whose roles are impacted by inter-location activities, and who can act as bridges of firsthand experience to aid the interpretation and elicitation of practice-based knowledge from other locations.

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