Communities of practice
and
social learning systems

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You probably know that the earth is round and that it is in orbit around the sun. But how do you know this? What does it take? Obviously, it takes a brain in a living body, but it also takes a very complex social, cultural, and historical system, which has accumulated learning over time. People have been studying the skies for centuries to understand our place in the universe. More recently, scientific communities have developed a whole vocabulary, observation methods, concepts, and models, which have been adopted by other communities and have become part of popular thinking in various ways. You have your our own relationships to all these communities, and these relationships are what enables you to "know" about the earth's position in the universe. In this sense, knowing is an act of participation in complex "social learning systems."

This essay assumes this view of knowing to consider how organizations depend on social learning systems. First, I outline two aspects of a conceptual framework for understanding social learning systems: a social definition of learning in terms of social *competence* and personal *experience*, and three distinct *modes of belonging* through which we participate in social learning systems: *engagement, imagination*, and *alignment*. Then I look at three structuring elements of social learning systems: *communities of practice*, *boundary* processes among these communities, and *identities* as shaped by our participation in these systems. About each of these elements I use my conceptual framework to ask three questions: Why focus on it? Which way is up, that is, how to construe progress in this area? And finally, what is doable, that is, what are elements of design that one can hope to influence? Finally, I argue that organizations both are constituted by and participate in such social learning systems. Their success depends on their ability to design themselves as social learning systems and also to participate in broader learning systems such as an industry, a region, or a consortium.

The conceptual framework I introduce here is intended for organizational design as well as analysis. The questions I ask are meant to guide the inquiry of the researcher as well the actions of the practitioner: what to pay attention to, how to give direction to our initiatives, and where to focus our efforts. As Kurt Lewin used to say, there is nothing as practical as a good theory.

Section 1. Aspects of a conceptual framework

A framework for understanding social learning systems must make it possible to understand learning as a social process. What is learning from a social perspective? And what are the processes by which our learning constitutes social systems and social identities?

1.1 A social definition of learning

In a social learning system, competence is historically and socially defined. How to be a physicist or how to understand the position of the earth in the universe is something that scientific communities have established over time. Knowing, therefore, is a matter of displaying competences defined in social communities. The picture is more complex and dynamic than that, however. Our experience of life and the social standards of competence of our communities are not necessarily, or even usually, congruent. We each experience knowing in our own ways. Socially defined competence is always in interplay with our experience. It is in this interplay that learning takes place.

Consider two extreme cases. Sometimes, we are a newcomer. We join a new community. We are a child who cannot speak yet. Or we are new employee. We feel like a bumbling idiot among the sages. We want to learn. We want to apprentice ourselves. We want to become one of them. We feel an urgent need to align our experience with the competence "they" define. Their competence pulls our experience.

Sometimes, it is the other way round. We have been with a community for a long time. We know the ropes. We are thoroughly competent, in our own eyes and in the eyes of our peers. But something happens. We are sent overseas. We go to a conference. We visit another department. We meet a "stranger" with a completely different perspective. Or we just take a long walk or engage in a deep conversation with a friend. Whatever the case may be, we have an experience that opens our eyes to a new way of looking at the world. This experience does not fully fit in the current practice of our home communities. We now see limitations we were not aware of before. We come back to our peers, try to communicate our experience, attempt to explain what we have discovered, so they too can expand their horizon. In the process, we are trying to change how our community defines competence (and we are actually deepening our own experience). We are using our experience to pull our community's competence along.

Whether we are apprentices or pioneers, newcomers or oldtimers, knowing always involves these two components: the *competence* that our communities have established over time (i.e., what it takes to act and be recognized as a competent member), and our ongoing *experience* of the world as a member (in the context of a given community and beyond). Competence and experience can be in various relations to each other—from very congruent to very divergent. As my two examples show, either can shape the other, although usually the process is not completely one way. But whenever the two are in close tension and either starts pulling the other, learning takes place. Learning so defined is an interplay between social competence and personal experience. It is a dynamic, two-way relationship between people and the social learning systems in which they participate. It combines personal transformation with the evolution of social structures.

1.2 Modes of belonging

Our belonging to social learning systems can take various forms at various levels between local interactions and global participation. To capture these different forms of participation, I will distinguish between three modes of belonging:

- ***engagement***: doing things together, talking, producing artifacts (e.g., helping a colleagues with a problem or participating in a meeting). The ways in which we engage with each other and with the world profoundly shape our experience of who we are. We learn what we can do and how the world responds to our actions.
- ***imagination***: constructing an image of ourselves, of our communities, and of the world, in order to orient ourselves, to reflect on our situation, and to explore possibilities (e.g., drawing maps, telling a story, or building a set of possible scenarios to understand one's options). I use imagination here in the sense proposed by Benedict Anderson (1983) to describe nations as communities: it does not connote fantasy as opposed to factuality. Knowing that the earth is round and in orbit around the sun, for instance, is not a fantasy. Yet it does require a serious act of imagination. It requires constructing an image of the universe in which it makes sense to think of our standing on the ground as being these little stick figures on a ball flying through the skies. Similarly, thinking of ourselves as member of a community such as a nation requires an act of imagination because we cannot engage with all our fellow citizens. These images of the world are essential to our sense of self and to our interpretation of our participation in the social world.
- ***alignment***: making sure that our local activities are sufficiently aligned with other processes that they can be effective beyond our own engagement (e.g., doing a scientific experiment by the book, convincing a colleague to join a cause, or negotiating a division of labor and a work plan for a project). The concept of alignment as used here does not connote a one-way process of submitting to external authority, but a mutual process of coordinating perspectives, interpretations, and actions so they realize higher goals. Following the scientific method, abiding by a moral code, or discussing important decisions with our spouse can all become very deep aspects of our identities.

Distinguishing between these modes of belonging is useful for two reasons. First, analytically, each mode contributes a different aspect to the formation of social learning systems and personal identities. Engagement, imagination, and alignment usually coexist and every social learning system involves each to some degree and in some combination. Still one can dominate and thus give a different quality to a social structure. For instance, a community mostly based on imagination such as a nation has a very different quality than a community of practice at work, which is primarily based on engagement. I would in fact argue that these modes of belonging provide a foundation for a typology of communities.

Second, practically, each mode requires a different kind of work. The work of engagement, which requires opportunities for joint activities, is different from the work of imagination, which often requires opportunities for taking some distance from our situation. The demands and effects of these three modes of belonging can be conflicting. Spending time reflecting can detract from engagement, for example. The modes can also

be complementary, however. For instance, using imagination to gain a good picture of the context of one's actions can help in fine-tuning alignment because one understands the reasons behind a procedure or an agreement. It is therefore useful to strive to develop these modes of belonging in combination, balancing the limitations of one with the work of another. For instance, reflective periods that activate imagination or boundary interactions that require alignment with other practices around a shared goal could be used to counteract the possible narrowness of engagement (Wenger, 1998).

Section 2. Communities of practice

Since the beginning of history, human beings have formed communities that share cultural practices reflecting their collective learning: from a tribe around a cave fire, to a medieval guild, to a group of nurses in a ward, to a street gang, to a community of engineers interested in brake design. Participating in these "communities of practice" is essential to our learning. It is at the very core of what makes us human beings capable of meaningful knowing.

2.1 Why focus on communities?

Communities of practice are the basic building blocks of a social learning system because they are the social "containers" of the competences that make up such a system. By participating in these communities, we define with each other what constitutes competence in a given context: being a reliable doctor, a gifted photographer, a popular student, or an astute poker player. Your company may define your job as processing thirty-three medical claims a day according to certain standards, but the competence required to do this in practice is something you determine with your colleagues as you interact day after day.

Communities of practice define competence by combining three elements (Wenger 1998). First, members are bound together by their collectively developed understanding of what their community is about and they hold each other accountable to this sense of *joint enterprise*. To be competent is to understand the enterprise well enough to be able to contribute to it. Second, members build their community through mutual engagement. They interact with one another, establishing norms and relationships of *mutuality* that reflect these interactions. To be competent is to be able to engage with the community and be trusted as a partner in these interactions. Third, communities of practice have produced a *shared repertoire* of communal resources—language, routines, sensibilities, artifacts, tools, stories, styles, etc. To be competent is to have access to this repertoire and be able to use it appropriately.

Communities of practice grow out of a convergent interplay of competence and experience that involves mutual engagement. They offer an opportunity to negotiate competence through an experience of direct participation. As a consequence, they remain important social units of learning even in the context of much larger systems. These larger systems are constellations of interrelated communities of practice.

	Enterprise: learning energy	Mutuality: social capital	Repertoire: self-awareness
Engagement	What are the opportunities to negotiate a joint inquiry and important questions? Do members identify gaps in their knowledge and work together to address them?	What events and interactions weave the community and develop trust? Does this result in an ability to raise troubling issues during discussions?	To what extent have shared experience, language, artifacts, histories, and methods accumulated over time, and with what potential for further interactions and new meanings?
Imagination	What visions of the potential of the community are guiding the thought leaders, inspiring participation, and defining a learning agenda? And what picture of the world serves as a context for such visions?	What do people know about each other and about the meanings that participation in the community takes in their lives more broadly?	Are there self-representations that would allow the community to see itself in new ways? Is there a language to talk about the community in a reflective mode?
Alignment	Have members articulated a shared purpose? How widely do they subscribe to it? How accountable do they feel to it? And how distributed is leadership?	What definitions of roles, norms, codes of behavior, shared principles, and negotiated commitments and expectations hold the community together?	What traditions, methods, standards, routines, and frameworks define the practice? Who upholds them? To what extent are they codified? How are they transmitted to new generations?

Progress Table 1. Community dimensions

2.2 Which way is up?

Communities of practice cannot be romanticized. They are born of learning, but they can also learn not to learn. They are the cradles of the human spirit, but they can also be its cages. After all, witch-hunts were also community practices. It is useful, therefore, to articulate some dimensions of progress:

- ***Enterprise: the level of learning energy***. How much initiative does the community takes in keeping learning at the center of its enterprise? A community must show leadership in pushing its development along and maintaining a spirit of inquiry. It must recognize and address gaps in its knowledge as well as remain open to emergent directions and opportunities.
- ***Mutuality: the depth of social capital.*** How deep is the sense of community generated by mutual engagement over time? People must know each other well enough to know how to interact productively and who to call for help or advice. They must trust each other, not just personally, but also in their ability to contribute to the enterprise of the community, so they feel comfortable addressing real problems together and speaking truthfully. Through receiving and giving help, they must gain

enough awareness of the richness of the community to expect that their contribution will be reciprocated in some way.

- ***Repertoire: the degree of self-awareness***. How self-conscious is the community about the repertoire that it is developing and its effects on its practice? The concepts, language, and tools of a community of practice embody its history and its perspective on the world. Being reflective on its repertoire enables a community to understand on its own state of development from multiple perspectives, reconsider assumptions, patterns, uncover hidden possibilities, and use this self-awareness to move forward.

The three dimensions work together. Without the learning energy of those who take initiative, the community becomes stagnant. Without strong relationships of belonging, it is torn apart. And without the ability to reflect, it becomes hostage to its own history. The work associated with each mode of belonging can contribute to these criteria. Progress Table 1. illustrates how the modes of belonging interact with community elements.

2.3 What is doable?

When designing itself, a community should look at the following elements: events, leadership, connectivity, membership, projects, and artifacts.

Events

You can organize public events that bring the community together. Obviously, these may or may not be attended, but if they are well tuned to the community's sense of its purpose, they will help it develop an identity. A community will have to decide the *type* of activities it needs: formal or informal meetings, problem-solving sessions, or guest speakers. It will also have to consider the *rhythm* of these events given other responsibilities members have: too often and people just stop coming, too rare and the community does not gain momentum. This rhythm may also have to change over time or go through cycles.

Leadership

Communities of practice depend on internal leadership, and enabling the leaders to play their role is a way to help the community develop. The role of "community coordinator" who takes care of the day-to-day work is crucial, but a community needs multiple forms of leadership: thought leaders, networkers, people who document the practice, pioneers, etc. These forms of leadership may be concentrated on one or two members or widely distributed, and this will change over time.

Connectivity

Building a community is not just a matter of organizing community events but also of enabling a rich fabric of connectivity among people. This could involve brokering relationships between people who need to talk or between people who need help and people who can offer help. It is also important to make it possible for people to communicate and interact in multiple media.

Membership

A community's member must have critical mass so that there is interest, but it should not become so wide that the focus of the community is diffuse and participation does not

grab people's identities. Including those who are missing can be very helpful in consolidating the legitimacy of the community to itself and in the wider organization. Conversely, realizing that the membership is overextended allows the community to split up into subgroups. Finally, devising processes by which newcomers can become full members helps ensure access for newcomers without diluting the community's focus.

Learning projects

Communities of practice deepen their mutual commitment when they take responsibility for a learning agenda, which pushes their practice further. Activities toward this goal include exploring the knowledge domain, finding gaps in the community practice, and defining projects to close these gaps. Such learning projects could involve, for instance, assessing some tools, building a generic design, doing a literature search, creating a connection with a university doing research in the area, or simply interviewing some experts to create a beginner's guide.

Artifacts

All communities of practice produce their own set of artifacts: documents, tools, stories, symbols, websites, etc. A community has to consider what artifacts it needs and who has the energy to produce and maintain them so they will remain useful as the community evolves.

Section 3. Boundaries

The term boundary often has negative connotations because it conveys limitation and lack of access. But the very notion of community of practice implies the existence of boundary. Unlike the boundaries of organizational units, which are usually well defined because affiliation is officially sanctioned, the boundaries of communities of practice are usually rather fluid. They arise from different enterprises, different ways of engaging with one another, different histories, repertoires, ways of communicating, and capabilities. That these boundaries are often unspoken does not make them less significant. Sit for lunch by a group of high-energy particle physicists and you know about boundary, not because they intend to exclude you, but because you cannot figure out what they are talking about. Shared practice by its very nature creates boundaries.

Yet if you are like me, you will actually enjoy this experience of boundary. There is something disquieting, humbling at times, yet exciting and attractive about such close encounters with the unknown, with the mystery of "otherness": a chance to explore the edge of your competence, learn something entirely new, revisit your little truths, and perhaps expand your horizon.

3.1 Why focus on boundaries?

Boundaries are important to learning systems for two reasons. They connect communities and they offer learning opportunities in their own right. These learning opportunities are of a different kind than the ones offered by communities. Inside a community, learning takes place because competence and experience need to converge for a community to exist. At the boundaries, competence and experience tend to diverge: a boundary

interaction is usually an experience of being exposed to a foreign competence. Such reconfigurations of the relation between competence and experience are an important aspect of learning. If competence and experience are too close, if they always match, not much learning is likely to take place. There are no challenges; the community is losing its dynamism and the practice is in danger of becoming stale. Conversely, if experience and competence are too disconnected, if the distance is too great, not much learning is likely to take place either. Sitting by that group of high-energy particle physicists, you might not learn much because the distance between your own experience and the competence you are confronting is just too great. Mostly what you are learning is that you do not belong.

Learning at boundaries is likely to be maximized for individuals and for communities when experience and competence are in close tension. Achieving a generative tension between them requires:

- something to interact about, some intersection of interest, some activity
- open engagement with real differences as well as common ground
- commitment to suspend judgment in order to see the competence of a community in its terms
- ways to translate between repertoires so that experience and competence actually interact.

Boundaries are sources of new opportunities as well as potential difficulties. In a learning system, communities and boundaries can be learning assets (and liabilities) in complementary ways.

- Communities of practice can steward a critical competence, but they can also become hostage to their history, insular, defensive, closed in, and oriented to their own focus.
- Boundaries can create divisions, a source of separation, fragmentation, disconnection, and misunderstanding. Yet, they can also be areas of unusual learning, places where perspectives meet and new possibilities arise. Radically new insights often arise at the boundaries between communities. Think of a specialization like psychoneuroimmunology: its very name reflects its birth at the intersection of multiple practices.

In social learning systems, the value of communities and their boundaries are complementary. Deep expertise depends on a convergence between experience and competence, but innovative learning requires their divergence. In either case, you need strong competences to anchor the process. But these competence also need to interact.. The learning and innovation potential of a social learning system lies in its configuration of strong core practices and active boundary processes.

	Coordination	**Transparency**	**Negotiability**
Engagement	What opportunities exist for joint activities, problem solving, and discussions to both surface and resolve differences through action?	Do people provide explanations, coaching, and demonstrations in the context of joint activities to open windows onto each others' practices?	Are joint activities structured in such a way that multiple perspectives can meet and that participants can come to appreciate each other's competences?

Imagination	Do people have enough understanding of their respective perspectives to present issues effectively and anticipate misunderstandings?	What stories, documents, and models are available to build a picture of another practice? What experience will allow people to walk in the other's shoes? Do they listen deeply enough?	Can both sides see themselves as members of an overarching community in which they have common interests and needs?
Alignment	Are instructions, goals, and methods interpretable into action across boundaries?	Are intentions, commitments, norms, and traditions made clear enough to reveal common ground and differences in perspectives and expectations?	Who has a say in negotiating contracts and devising compromises?

Progress table 2. Boundary dimensions

3.2 Which way is up?

Not all boundary processes create bridges that actually connect practices in deep ways. The actual boundary effects of these processes can be assessed along the following dimensions:

- ***Coordination***. Can boundary processes and objects be interpreted in different practices in a way that enables coordinated action? For instance, an elegant design may delight designers but say little to those concerned with manufacturability. Across boundaries, effective actions and use of objects require new levels of coordination. They must accommodate the practices involved without burdening others with the details of one practice and must provide enough standardization that people know how to deal with them locally.
- ***Transparency.*** Do boundary processes give access to the meanings they have in various practices? Coordination does not imply that boundary processes provide an understanding of the practices involved. For instance, forms like US tax returns enable coordination across boundaries (you know how to fill them out by following instructions line by line), but often afford no windows into the logic they are meant to enforce (following instructions often tells you little about why these calculations are "fair").
- ***Negotiability***. Do boundary processes provide a one-way or a two-way connection? For instance, a business process reengineering plan may be very detailed about implementation (coordination) and explicit about its intentions (transparency), but reflect or allow little negotiation between the perspectives involved. Boundary processes can merely reflect relations of power among practices, in which case they are likely to reinforce the boundary rather than bridge it. They will bridge practices to the extent that they make room for multiple voices.

Progress Table 2 explores how the three modes of belonging affect these qualities of boundary processes.

3.3 What is doable?

Boundary processes are crucial to the coherent functioning of social learning systems. A number of elements can be intentionally promoted in an effort to weave these systems more tightly together. Here, I will talk about three types of bridges across boundaries: *people* who act as "brokers" between communities, *artifacts* (things, tools, terms, representations, etc.) that serve as what Star and Griesemer (1989) call "boundary objects", and a variety of forms of *interactions* among people from different communities of practice.

Brokering

Some people act as brokers between communities. They can introduce elements of one practice into another. Although we all do some brokering, my experience is that certain individuals seem to thrive on being brokers: they love to create connections and engage in "import-export," and so would rather stay at the boundaries of many practices than move to the core of any one practice. Brokering can take various forms, including:

- ***Boundary spanners***: taking care of one specific boundary over time
- ***Roamers***: going from place to place, creating connections, moving knowledge
- ***Outposts***: bringing back news from the forefront, exploring new territories
- ***Pairs***: often brokering is done through a personal relationship between two people from different communities and it is really the relationship that acts as a brokering device.

Brokering knowledge is delicate. It requires enough legitimacy to be listened to and enough distance to bring something really new. Because brokers often do not fully belong anywhere and may not contribute directly to any specific outcome, the value they bring can easily be overlooked. Uprootedness, homelessness, marginalization, and organizational invisibility are all occupational hazards of brokering. Developing the boundary infrastructure of a social learning system means paying attention to people who act as brokers. Are they falling through the cracks? Is the value they bring understood? Is there even a language to talk about it? Are there people who are potential brokers but who for some reason do not provide cross-boundary connections?

Boundary objects

Some objects find their value, not just as artifacts of one practice, but mostly to the extent that they support connections between different practices. Such boundary objects can take multiple forms:

- ***Artifacts***, such as tools, documents, or models. For instance, medical records and architectural blueprints play a crucial role in connecting multiple practices (doctors/nurses/insurers, architects/contractors/city planners).
- ***Discourses***. A critical boundary object is the existence of a common language that allows people to communicate and negotiate meanings across boundaries. This was an important thrust behind the quality movement, and it typified by the six sigma discourse at Motorola.
- ***Processes***. Shared processes, including explicit routines and procedures, allow people to coordinate their actions across boundaries. Business processes, for instance, are not

just fixed prescriptive definitions. At their best, they act as boundary objects that allow multiple practices to coordinate their contributions.

Boundary objects do not necessarily bridge across boundaries because they may be misinterpreted or interpreted blindly. Rethinking artifacts and designs in terms of their function as boundary objects often illuminates how they contribute to or hinder the functioning of learning systems. An organizational structure, for instance, is often considered as an overarching umbrella that incorporates multiple parts by specifying their relationships. But in fact, it is more usefully designed as a boundary object intended to enable multiple practices to negotiate their relationships and connect their perspectives.

Boundary interactions

- ***Boundary encounters.*** These encounters—visits, discussions, sabbaticals—provide direct exposure to a practice. They can take different forms for different purposes. When one person visits, as in a sabbatical, it easier to get fully immersed in the practice, but more difficult to bring the implications home because the very immersion into a "foreign" practice tends to isolate you from your peers. GM, for instance, has had difficulty learning from people sent on sabbatical at its more experimental units such as NUMMI and Saturn because their transformed perspectives could not find a place back home. When a delegation of two or more people visit, as in a benchmarking expedition, they may not get as fully immersed, but they can negotiate among themselves the meaning of the boundary interaction for their own practice, and therefore find it easier to bring their learning back home.
- ***Boundary practices.*** In some cases, a boundary requires so much sustained work that it becomes the topic of a practice of its own. At Xerox, as in many companies, some people are charged with the task of maintaining connections between the R&D lab and the rest of the corporation. They are developing a practice of crossing these boundaries effectively. Of course, the risk of these boundary practices is that they create their own boundaries, which can prevent them from functioning as brokers. It is necessary, therefore, to keep asking how the elements of the boundary practice—its enterprise, its relationships, its repertoire—contribute to creating a bridge and how the community deals with its own boundaries. And sometimes, a new practice in its own right does develop at these boundaries, which is worth paying attention to in its own terms.
- ***Peripheries.*** Communities often have to take steps to manage their boundaries to serve people who need some service, are curious, or intend to become members. Many communities have found it useful to create some facilities by which outsiders can connect with their practice in peripheral ways. Examples of such facilities include lists of "frequently asked questions," visitor's rooms on websites, open houses and fairs. Some communities have even established "help desks" to provide access to their expertise in a more efficient way. The idea behind many of these facilities is to provide for some boundary activities without overwhelming the community itself with the task of accommodating outsiders' demands. For newcomers, some communities organize introductory events, mentoring relationships, or even formal apprenticeship systems.

Cross-disciplinary projects

In most organizations, members of communities of practice contribute their competence by participating in cross-functional projects and teams that combine the knowledge of multiple practices to get something done. Simultaneous participation in communities of practice and project teams creates learning loops that combine application with capability development. In these double-knit organizations, as Richard McDermott (1998) calls them, the learning and innovation that is inherent in projects is synthesized and disseminated through the home communities of practice of team members. The new knowledge can then be applied and expanded in new projects, and the cycle goes on.

Such a perspective brings up a different way of thinking about these projects. From the standpoint of the task to be accomplished, these projects are cross-disciplinary because they require the contribution of multiple disciplines. But from the perspective of the development of practices, they are boundary projects. Indeed, participating in these kinds of projects exposes practitioners to others in the context of specific tasks that go beyond the purview of any practice. People confront problems that are outside the realm of their competence but that force them to negotiate their own competence with the competences of others. Such projects provide a great way to sustain a creative tension between experience and competence when our participation in a project leverages and nourishes our participation in a community of practice.

Section 4. Identities

As I said, you probably know that the earth is round and in orbit around the sun. Of course, it is not a flat plate the way it appears to be at first glance. You actually want to make sure you know this. It is part of your identity as the kind of well-educated adult you probably are if you are reading this article. You may even know that the orbit is not an exact circle, but a slight ellipse. Chances are, however, you do not know the exact distance between the earth and the sun or the precise difference between the apogee and the perigee. This kind of ignorance, your identity can accept without existential angst because your relationship to the communities where such knowledge matters is very peripheral at best.

I am not trying to make you feel self-conscious about your knowledge of astrophysics. There will be no test at the end of this article. (Did I hear a sigh of relief? No, no, you are perfectly OK just knowing the earth is round, and many of our fellow human beings have lived very good lives not even knowing that.) My point is that if knowing is an act of belonging, then our identities are a key structuring element of how we know.

4.1 Why focus on identity?

Knowing, learning, and sharing knowledge are not abstract things we do for their own sake. They are part of belonging (Eckert, 1989). When I was working with claims processors in an insurance company, I noticed that their knowing was interwoven in profound ways with their identities as participants in their community of practice. Their job did not have a high status in the company (and in their own eyes, for that matter), so they were careful not to be interested in it more than was absolutely necessary. What they knew about their job, what they tried to understand and what they accepted not to

understand about the forms they had to fill out, what they shared with each other, all that was not merely a matter of necessity to get the job done, but it was also a matter of identity. Knowing too much or failing to share a crucial piece of knowledge would be a betrayal of their sense of self and of their community (Wenger, 1998).

In the landscape of communities and boundaries in which we live, we identify with some communities strongly and not at all with others. We define who we are by what is familiar and what is foreign, by what we need to know and what we can safely ignore. You are a cello player, but not the conductor who signals your entry, nor the dancer who dances the ballet you are playing, nor the lawyer whom you saw this afternoon about your uncle's estate. We define ourselves by what we are not as well as by what we are, by the communities we do not belong to as well as by the ones we do. These relationships change. We move from community to community. In doing so, we carry a bit of each as we go around. Our identities are not something we can turn on and off. You don't cease to be a parent because you go to work. You don't cease to be a nurse because you step out of the hospital. Multimembership is an inherent aspect of our identities.

Identity is crucial to social learning systems for three reasons. First, our identities combine competence and experience into a way of knowing. They are the key to deciding what matters and what does not, with whom we identify and whom we trust, and with whom we must share what we understand. Second, our ability to deal with boundaries productively depends on our ability to engage and suspend our identities. Learning from our interactions with other practices is not just an intellectual matter of translation. It is also a matter of opening up our identities to other ways of being in the world. Third, our identities are the living vessels in which communities and boundaries become realized as an experience of the world. Whenever we belong to multiple communities, we experience the boundary in a personal way. In the process, we create bridges across communities because in developing our own identities, we deal with these boundaries in ourselves.

4.2 Which way is up?

Our identities are not necessarily strong or healthy. Sometimes, they are even self-defeating. In fact, a whole self-help industry has flourished by offering advice for building healthy identities (Giddens, 1991). Navigating the social landscape defined by communities and their boundaries requires a strong identity. Progress can be described in terms of a few crucial qualities that must coexist to constitute a healthy social identity:

- ***Connectedness***. Where are enduring social relationships through which an identity gains social depth? An identity is not an abstract idea or a label, such as a title, an ethnic category, or a personality trait. It is a lived experience of belonging (or not belonging). A strong identity involves deep connections with others through shared histories and experiences, reciprocity, affection, and mutual commitments.
- ***Expansiveness***. What are the breadth and scope of an identity? A healthy identity will not be exclusively locally defined. It will involve multimembership and cross multiple boundaries. It will seek a wide range of experiences and be open to new possibilities. It will identify with broad communities that lie beyond direct participation.

- ***Effectiveness***. Does an identity enable action and participation? Identity is a vehicle for participating in the social world, but it can also lead to non-participation. A healthy identity is socially empowering rather than marginalizing.

There are potential tensions and conflicts between these qualities. How "big" can your identity be and still be engaged as well effective (not merely an abstract kind of identification)? Can you really think globally and act locally, feel like a citizen of the earth without losing your ability to connect with specific communities? Can you live on the internet and still have a good marriage? In other words, it is the combination of these qualities that matters. Progress Table 3. explores how each mode of belonging contributes to these three qualities.

	Connectedness	**Expansiveness**	**Effectiveness**
Engagement	Is there a community to engage with? How far back do you go? What kinds of interactions do you have? What do you do together? Do you trust and are you trusted?	Is there enough variety of contexts and identity-forming experiences, such as logging on the internet and chatting with strangers, going on a blind date, or visiting a foreign country?	Do you have opportunities to develop socially recognized competences by participating in well-established practices? Are your communities ready to embrace your experience into their practices?
Imagination	Do you have good conversations? Do you talk about your deepest aspirations? Do you listen well?	Can you see yourself as a member of large communities, for instance, a world citizen, the heir of long-lived traditions, the pioneer of a world to come?	Do you understand the big picture well enough to act effectively?
Alignment	Do you keep your commitments to your communities? Do you uphold their principles? Do you give and receive feedback?	Do you follow guidelines that align your actions with broader purposes, such as saving energy or recycling for the sake of the planet?	Do you know the regimes of accountability by which your ideas, actions, and requests will be judged? Can you convince others of the potential of a new idea?

Progress Table 3. Identity dimensions

4.3 What is doable?

To help identities achieve simultaneously high degrees of local connectedness, global expansiveness, and social effectiveness, here are some design elements to consider:

Home base

Identity needs a place where a person can experience knowing as a form of social competence. Think of a project-based organization, for instance, where people go from one project to the next, spending a few days in-between on the "available" list. The learning that they do in their projects does not have a social "home," unless they can also belong to a community of practice. In such a community, they are not only recognized as competent for the sake of a project, but their need to develop their competence is part of

their belonging. Their professional development and the development of the practice go hand in hand: the identity of the community as it evolves parallels the evolution of their own identity. They can talk with peers who understand the way they look at a problem, who appreciate the potential value of a half-baked idea, and who know where the cutting-edge of the practice lies. With such a "home base" people can engage in a diversity of projects and in interactions with other communities without becoming uprooted.

Trajectories

Identity extends in time. It is a trajectory in progress that includes where you have been and where you are going, your history and your aspirations. It brings the past and the future into the experience of the present. Apprentices in traditional apprenticeship, for instance, are not just learning skills, they are exposed to possible futures. By observing and working with journeymen and masters, they develop a sense of trajectory that expands their identity in time (Lave and Wenger, 1991). Members of a community embody set of paradigmatic trajectories that provide material for newcomers to construct their own trajectory through a community and beyond. In the generational encounter between newcomers and established members, the identities of both get expanded. Newcomers gain a sense of history. And old-timers gain perspective as they revisit their own ways and open future possibilities for others (Wenger, 1998).

A good way to develop identities is to open a set of trajectories that lead to possible futures. The engagement of one's identity then incorporates imagination and alignment: envisioning these possible futures and doing what it takes to get there. These trajectories can be of various types. Inbound trajectories invite newcomers into full membership in a community. Peripheral trajectories allow a person to interact with the community without making a commitment to becoming a full member. Outbound trajectories, such as the ones offered by schools, point to forms of participation outside the current communities.

Multimembership

Identity extends in space, across boundaries. It is neither unitary nor fragmented. It is an experience of multimembership, an intersection of many relationships that you hold into the experience of being a person, at once one and multiple. It is not something we can turn on and off. When we go to work, we don't cease to be parents, and when we go to the theater, we are still an engineer or a waitress. We bring these aspects of our identity to bear to some extent in everything we do. Even though certain aspects of our identities become more salient in different circumstances, it would be an oversimplification to assume that we merely have a multiplicity of separate identities. Such a view would overlook the extent to which our various forms of membership can and do conflict with, influence, complement, and enrich each other. The work that we do in attempts to combine, confront, or reconcile various aspects of our identities has a double effect. It is a source of personal growth. It is also a source of social cohesion because it builds bridges across practices. As a result, our identities shape the social structures we live in. The work of identity constantly reshapes boundaries and reweaves the social fabric of our learning systems.

Combining concurrent forms of membership in multiple communities into one's experience is a way to expand an identity. Of course we only can combine core membership in a limited number of communities, but we can also have more peripheral

forms of participation, or even transitory one, such as visits, sabbaticals, immersion, or one-time projects. Communities that can include in their forms of participation a large portion of the multimembership of their members are more likely to engage their whole identity. If I do not have to pretend that I am not a parent when I am at work, I am more likely to put my heart into what I do.

Fractals

Identity extends across levels. You are having dinner with your family, ensconced in an intense discussion of international politics with your teenagers, living—in the local context of the dinner table—your sense of identification with the global environmental movement. Similarly, you may belong to a local church, but this belonging is usually an expression of your belonging to a religion that includes many other people in many other churches. Engaging at the local level of your church is a way to belong at the broader level of your religion by combining such engagement with imagination (you can picture many other churches with people very much like you expressing similar beliefs, even though you have never met them) and with alignment (in your church you follow rituals that conform with liturgical formats adhered to by all other churches). Note how the three modes of belonging complement each other. Engagement is enriched by the awareness that others share the same beliefs and follow the same guidelines. Conversely, imagining the whole community and understanding the value of its rituals and norms gains concreteness by the ability to engage in a local group.

Combining modes of belonging this way creates "fractal" layers of belonging. More generally, if a community is large, it is a good idea to structure it in layers, as a "fractal" of embedded subcommunities. If a community is large and does not have a fractal structure with local subcommunities in which people can engage actively, then it can easily happen that beyond a small core group various segments of the community feel disconnected. Subcommunities could be defined regionally, as local "chapters" of a global community. Some representatives of these local communities then form a global community among them, whose purpose is to connect the local subcommunities into one large global one. This is how some global communities of well engineers have structured their forms of participation at Shell Oil. Subcommunities could be also be defined by subspecialties as engineering communities are at DaimlerChrysler, where engineers can join communities specialized in specific components (e.g., wipers, seats, or dashboards) but clustered into broader communities defined according to systems (e.g., body or powertrain). With such a fractal structure, by belonging to your own subcommunity, you experience in a local and direct way your belonging to a much broader community.

Section 5. Conclusion: Participation in social learning systems

The perspective of a social learning system applies to many of our social institutions: our disciplines, our industries, our economic regions, and our organizations. This view has implications at multiple levels.

- For individuals, this perspective highlights the importance to find the dynamic set of communities they should belong to—centrally and peripherally—and to fashion a meaningful trajectory through these communities over time.

- For communities of practice, it requires a balance between core and boundary processes, so that the practice is both a strong node in the web of interconnections—an enabler of deep learning in a specific area—and at the same time, highly linked with other parts of the system—a player in systemwide processes of knowledge production, exchange, and transformation.
- For organizations, this perspective implies a need to learn to foster and participate in social learning systems, both inside and outside organizational boundaries. Social learning systems are not defined by, congruent with, or cleanly encompassed in organizations. Organizations can take part in them; they can foster them; they can leverage them; but they cannot fully own or control them.

This paradox could be bad news because the organizational requirements of social learning systems often run counter to traditional management practices (Wenger and Snyder, in press). The currency of these systems is collegiality, reciprocity, expertise, contributions to the practice, and negotiating a learning agenda, not affiliation to an institution, assigned authority, or commitment to a predefined deliverable. But there is also good news. The knowledge economy will give more primacy to informal systems. In a traditional industrial setting, the formal design of a production system is the primary source of value creation. Think of an assembly line where value derives from the quality of the design of the formal process. Informal processes still exist, but they produce value to the extent that they conform to and serve the formal design. In the knowledge economy, this relationship is inverted. The primary source of value creation lies in informal processes, such as conversations, brainstorming, and pursuing ideas. Formal organizational designs and processes are still important, but they contribute to value creation to the extent that they are in the service of informal processes.

This framework suggests two directions for organizations. On the one hand, they must learn to manage themselves as social learning systems and develop such systems internally. This means

- Giving primacy to the kind of informal learning processes characteristic of communities of practice and designing organizational structures and processes that are in the service of the informal
- Placing a lot of emphasis on the meaningfulness of participation in the organization, on the possibility for building interesting identities, and on community membership as the primary relationship to the organization (Handy, 1989)
- Organizing for complexity, working to link the various communities that constitute the learning systems in which the organization operates, offering channels, shared discourses, processes, and technology platforms by which local forms of knowledgeability can have global connections and effects, and providing coordination among practices to create complex knowledge beyond the purview of any practice.

With respect to this internal learning systems, the learning potential of an organization lies in its configuration of core practices and boundary processes (Wenger, 1998)

On the other hand, organizations must learn to participate in broader learning systems in which they are only one of many players. Companies have learned to participate as one of many players in economic markets to sell products and services to customers taken as individual decision-makers. In the knowledge economy, however, they must learn to

participate in learning systems as well. Knowledge production is becoming more distributed, complex, and diversified, in disciplines and industries (Gibbons *et al.*, 1994), in regional economies such as Silicon Valley (Saxenian, 1996), and among consumers who have the potential of forming communities (Snyder, 1999).

In these learning systems, organizations find the talents they need, new ideas, technological developments, best practices, and learning partners. The rules of participation in social learning systems are different than those of product markets. You don't simply compete; in fact, your most threatening competitor may be your best partner when it comes to learning together. If you hoard your knowledge in a social learning system, you quickly appear as taking more than you give, and you will progressively be excluded from the most significant exchanges.

In a knowledge economy, sustained success for any organization will depend not only on effective participation in economic markets, but just as importantly and with many of the same players, on knowing how to participate in broader social learning systems.

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