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SOCIAL, COGNITIVE, AND COMPUTATIONAL PERSPECTIVES

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Communities of Practice: Learning, Meaning, and Identity
ETIENNE WENGER

Communities of practice

Learning, meaning, and identity

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Contents

Introduction

A social theory of learning

Our institutions, to the extent that they address issues of learning explicitly, are largely based on the assumption that learning is an individual process, that it has a beginning and an end, that it is best separated from the rest of our activities, and that it is the result of teaching. Hence we arrange classrooms where students – free from the distractions of their participation in the outside world – can pay attention to a teacher or focus on exercises. We design computer-based training programs that walk students through individualized sessions covering reams of information and drill practice. To assess learning we use tests with which students struggle in one-on-one combat, where knowledge must be demonstrated out of context, and where collaborating is considered cheating. As a result, much of our institutionalized teaching and training is perceived by would-be learners as irrelevant, and most of us come out of this treatment feeling that learning is boring and arduous, and that we are not really cut out for it.

So, what if we adopted a different perspective, one that placed learning in the context of our lived experience of participation in the world? What if we assumed that learning is as much a part of our human nature as eating or sleeping, that it is both life-sustaining and inevitable, and that – given a chance – we are quite good at it? And what if, in addition, we assumed that learning is, in its essence, a fundamentally social phenomenon, reflecting our own deeply social nature as human beings capable of knowing? What kind of understanding would such a perspective yield on how learning takes place and on what is required to support it? In this book, I will try to develop such a perspective.

A conceptual perspective: theory and practice

There are many different kinds of learning theory. Each emphasizes different aspects of learning, and each is therefore useful for

different purposes. To some extent these differences in emphasis reflect a deliberate focus on a slice of the multidimensional problem of learning, and to some extent they reflect more fundamental differences in assumptions about the nature of knowledge, knowing, and knowers, and consequently about what matters in learning. (For those who are interested, the first note lists a number of such theories with a brief description of their focus.[1])

The kind of social theory of learning I propose is not a replacement for other theories of learning that address different aspects of the problem. But it does have its own set of assumptions and its own focus. Within this context, it does constitute a coherent level of analysis; it does yield a conceptual framework from which to derive a consistent set of general principles and recommendations for understanding and enabling learning.

My assumptions as to what matters about learning and as to the nature of knowledge, knowing, and knowers can be succinctly summarized as follows. I start with four premises.

1) We are social beings. Far from being trivially true, this fact is a central aspect of learning.
2) Knowledge is a matter of competence with respect to valued enterprises – such as singing in tune, discovering scientific facts, fixing machines, writing poetry, being convivial, growing up as a boy or a girl, and so forth.
3) Knowing is a matter of participating in the pursuit of such enterprises, that is, of active engagement in the world.
4) Meaning – our ability to experience the world and our engagement with it as meaningful – is ultimately what learning is to produce.

As a reflection of these assumptions, the primary focus of this theory is on learning as social participation. Participation here refers not just to local events of engagement in certain activities with certain people, but to a more encompassing process of being active participants in the *practices* of social communities and constructing *identities* in relation to these communities. Participating in a playground clique or in a work team, for instance, is both a kind of action and a form of belonging. Such participation shapes not only what we do, but also who we are and how we interpret what we do.

A social theory of learning must therefore integrate the components necessary to characterize social participation as a process of learning

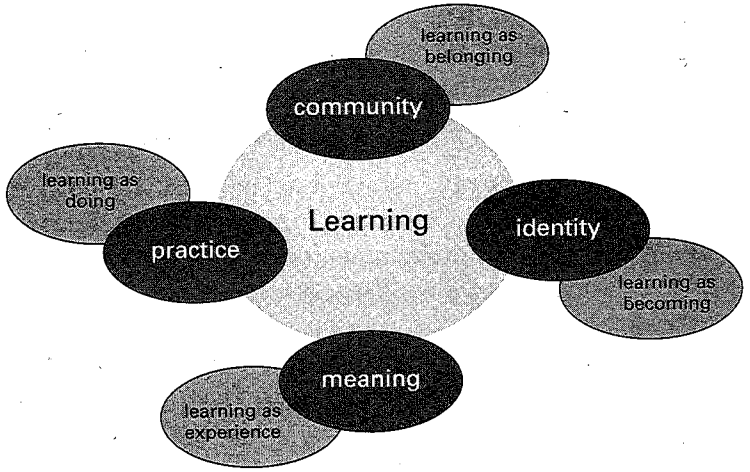

Figure 0.1. Components of a social theory of learning: an initial inventory.

and of knowing. These components, shown in Figure 0.1, include the following.

1) *Meaning:* a way of talking about our (changing) ability – individually and collectively – to experience our life and the world as meaningful.
2) *Practice:* a way of talking about the shared historical and social resources, frameworks, and perspectives that can sustain mutual engagement in action.
3) *Community:* a way of talking about the social configurations in which our enterprises are defined as worth pursuing and our participation is recognizable as competence.
4) *Identity:* a way of talking about how learning changes who we are and creates personal histories of becoming in the context of our communities.

Clearly, these elements are deeply interconnected and mutually defining. In fact, looking at Figure 0.1, you could switch any of the four peripheral components with learning, place it in the center as the primary focus, and the figure would still make sense.

Therefore, when I use the concept of "community of practice" in the title of this book, I really use it as a point of entry into a broader conceptual framework of which it is a constitutive element. The analytical

power of the concept lies precisely in that it integrates the components of Figure 0.1 while referring to a familiar experience.

Communities of practice are everywhere

We all belong to communities of practice. At home, at work, at school, in our hobbies – we belong to several communities of practice at any given time. And the communities of practice to which we belong change over the course of our lives. In fact, communities of practice are everywhere.

Families struggle to establish an habitable way of life. They develop their own practices, routines, rituals, artifacts, symbols, conventions, stories, and histories. Family members hate each other and they love each other; they agree and they disagree. They do what it takes to keep going. Even when families fall apart, members create ways of dealing with each other. Surviving together is an important enterprise, whether surviving consists in the search for food and shelter or in the quest for a viable identity.

Workers organize their lives with their immediate colleagues and customers to get their jobs done. In doing so, they develop or preserve a sense of themselves they can live with, have some fun, and fulfill the requirements of their employers and clients. No matter what their official job description may be, they create a practice to do what needs to be done. Although workers may be contractually employed by a large institution, in day-to-day practice they work with – and, in a sense, for – a much smaller set of people and communities.

Students go to school and, as they come together to deal in their own fashion with the agenda of the imposing institution and the unsettling mysteries of youth, communities of practice sprout everywhere – in the classroom as well as on the playground, officially or in the cracks. And in spite of curriculum, discipline, and exhortation, the learning that is most personally transformative turns out to be the learning that involves membership in these communities of practice.

In garages, bands rehearse the same songs for yet another wedding gig. In attics, ham radio enthusiasts become part of worldwide clusters of communicators. In the back rooms of churches, recovering alcoholics go to their weekly meetings to find the courage to remain sober. In laboratories, scientists correspond with colleagues, near and far, in order to advance their inquiries. Across a worldwide web of computers,

people congregate in virtual spaces and develop shared ways of pursuing their common interests. In offices, computer users count on each other to cope with the intricacies of obscure systems. In neighborhoods, youths gang together to configure their life on the street and their sense of themselves.

Communities of practice are an integral part of our daily lives. They are so informal and so pervasive that they rarely come into explicit focus, but for the same reasons they are also quite familiar. Although the term may be new, the experience is not. Most communities of practice do not have a name and do not issue membership cards. Yet, if we care to consider our own life from that perspective for a moment, we can all construct a fairly good picture of the communities of practice we belong to now, those we belonged to in the past, and those we would like to belong to in the future. We also have a fairly good idea of who belongs to our communities of practice and why, even though membership is rarely made explicit on a roster or a checklist of qualifying criteria. Furthermore, we can probably distinguish a few communities of practice in which we are core members from a larger number of communities in which we have a more peripheral kind of membership.

In all these ways, the concept of community of practice is not unfamiliar. By exploring it more systematically in this book, I mean only to sharpen it, to make it more useful as a thinking tool. Toward this end, its familiarity will serve me well. Articulating a familiar phenomenon is a chance to push our intuitions: to deepen and expand them, to examine and rethink them. The perspective that results is not foreign, yet it can shed new light on our world. In this sense, the concept of community of practice is neither new nor old. It has both the eye-opening character of novelty and the forgotten familiarity of obviousness – but perhaps that is the mark of our most useful insights.

Rethinking learning

As I will argue in more detail throughout this book, placing the focus on participation has broad implications for what it takes to understand and support learning.

- For *individuals,* it means that learning is an issue of engaging in and contributing to the practices of their communities.
- For *communities,* it means that learning is an issue of refining their practice and ensuring new generations of members.

- For *organizations*, it means that learning is an issue of sustaining the interconnected communities of practice through which an organization knows what it knows and thus becomes effective and valuable as an organization.

Learning in this sense is not a separate activity. It is not something we do when we do nothing else or stop doing when we do something else. There are times in our lives when learning is intensified: when situations shake our sense of familiarity, when we are challenged beyond our ability to respond, when we wish to engage in new practices and seek to join new communities. There are also times when society explicitly places us in situations where the issue of learning becomes problematic and requires our focus: we attend classes, memorize, take exams, and receive a diploma. And there are times when learning gels: an infant utters a first word, we have a sudden insight when someone's remark provides a missing link, we are finally recognized as a full member of a community. But situations that bring learning into focus are not necessarily those in which we learn most, or most deeply. The events of learning we can point to are perhaps more like volcanic eruptions whose fiery bursts reveal for one dramatic moment the ongoing labor of the earth. Learning is something we can assume – whether we see it or not, whether we like the way it goes or not, whether what we are learning is to repeat the past or to shake it off. Even failing to learn what is expected in a given situation usually involves learning something else instead.

For many of us, the concept of learning immediately conjures up images of classrooms, training sessions, teachers, textbooks, homework, and exercises. Yet in our experience, learning is an integral part of our everyday lives. It is part of our participation in our communities and organizations. The problem is not that we do not know this, but rather that we do not have very systematic ways of talking about this familiar experience. Even though the topic of this book covers mostly things that everybody knows in some ways, having a systematic vocabulary to talk about it does make a difference. An adequate vocabulary is important because the concepts we use to make sense of the world direct both our perception and our actions. We pay attention to what we expect to see, we hear what we can place in our understanding, and we act according to our world views.

Although learning can be assumed to take place, modern societies have come to see it as a topic of concern – in all sorts of ways and for

a host of different reasons. We develop national curriculums, ambitious corporate training programs, complex schooling systems. We wish to cause learning, to take charge of it, direct it, accelerate it, demand it, or even simply stop getting in the way of it. In any case, we want to do something about it. Therefore, our perspectives on learning matter: what we think about learning influences where we recognize learning, as well as what we do when we decide that we must do something about it – as individuals, as communities, and as organizations.

If we proceed without reflecting on our fundamental assumptions about the nature of learning, we run an increasing risk that our conceptions will have misleading ramifications. In a world that is changing and becoming more complexly interconnected at an accelerating pace, concerns about learning are certainly justified. But perhaps more than learning itself, it is our *conception* of learning that needs urgent attention when we choose to meddle with it on the scale on which we do today. Indeed, the more we concern ourselves with any kind of design, the more profound are the effects of our discourses on the topic we want to address. The farther you aim, the more an initial error matters. As we become more ambitious in attempts to organize our lives and our environment, the implications of our perspectives, theories, and beliefs extend further. As we take more responsibility for our future on larger and larger scales, it becomes more imperative that we reflect on the perspectives that inform our enterprises. A key implication of our attempts to organize learning is that we must become reflective with regard to our own discourses of learning and to their effects on the ways we design for learning. By proposing a framework that considers learning in social terms, I hope to contribute to this urgent need for reflection and rethinking.

The practicality of theory

A perspective is not a recipe; it does not tell you just what to do. Rather, it acts as a guide about what to pay attention to, what difficulties to expect, and how to approach problems.

- If we believe, for instance, that knowledge consists of pieces of information explicitly stored in the brain, then it makes sense to package this information in well-designed units, to assemble prospective recipients of this information in a classroom where they are perfectly still and isolated from any distraction, and to deliver this information

to them as succinctly and articulately as possible. From that perspective, what has come to stand for the epitome of a learning event makes sense: a teacher lecturing a class, whether in a school, in a corporate training center, or in the back room of a library.

But if we believe that information stored in explicit ways is only a small part of knowing, and that knowing involves primarily active participation in social communities, then the traditional format does not look so productive. What does look promising are inventive ways of engaging students in meaningful practices, of providing access to resources that enhance their participation, of opening their horizons so they can put themselves on learning trajectories they can identify with, and of involving them in actions, discussions, and reflections that make a difference to the communities that they value.

- Similarly, if we believe that productive people in organizations are the diligent implementors of organizational processes and that the key to organizational performance is therefore the definition of increasingly more efficient and detailed processes by which people's actions are prescribed, then it makes sense to engineer and re-engineer these processes in abstract ways and then roll them out for implementation.

But if we believe that people in organizations contribute to organizational goals by participating inventively in practices that can never be fully captured by institutionalized processes, then we will minimize prescription, suspecting that too much of it discourages the very inventiveness that makes practices effective. We will have to make sure that our organizations are contexts within which the communities that develop these practices may prosper. We will have to value the work of community building and make sure that participants have access to the resources necessary to learn what they need to learn in order to take actions and make decisions that fully engage their own knowledgeability.

If all this seems like common sense, then we must ask ourselves why our institutions so often seem, not merely to fail to bring about these outcomes, but to work against them with a relentless zeal. Of course, some of the blame can justifiably be attributed to conflicts of interest, power struggles, and even human wickedness. But that is too simple an answer, and unnecessarily pessimistic. We must also remember that our institutions are designs and that our designs are hostage to our understanding, perspectives, and theories. In this sense, our theories

are very practical because they frame not just the ways we act, but also – and perhaps most importantly when design involves social systems – the ways we justify our actions to ourselves and to each other. In an institutional context, it is difficult to act without justifying your actions in the discourse of the institution.

A social theory of learning is therefore not exclusively an academic enterprise. While its perspective can indeed inform our academic investigations, it is also relevant to our daily actions, our policies, and the technical, organizational, and educational systems we design. A new conceptual framework for thinking about learning is thus of value not only to theorists but to all of us – teachers, students, parents, youths, spouses, health practitioners, patients, managers, workers, policy makers, citizens – who in one way or another must take steps to foster learning (our own and that of others) in our relationships, our communities, and our organizations. In this spirit, this book is written with both the theoretician and the practitioner in mind.

Intellectual context

Because I am trying to serve multiple audiences, I will endeavor to propose a synthetic perspective rather than to enter deeply into the arguments, technicalities, and controversies of any one academic community. In fact, whenever I make references to the literature covering such debates, I will do so in the notes. It is still useful, however, to spend a few paragraphs outlining the intellectual traditions that have influenced my thinking, whose influence I have tried to weave together, and to which I hope this work will make some contributions. If you are not interested, skipping this section will not impair your ability to follow my argument.

In an earlier book, anthropologist Jean Lave and I tried to distill – from a number of ethnographic studies of apprenticeship – what such studies might contribute to a general theory of learning. Our purpose was to articulate what it was about apprenticeship that seemed so compelling as a learning process. Toward this end, we used the concept of *legitimate peripheral participation* to characterize learning. We wanted to broaden the traditional connotations of the concept of apprenticeship – from a master/student or mentor/mentee relationship to one of changing participation and identity transformation in a community of practice. The concepts of identity and community of practice were thus

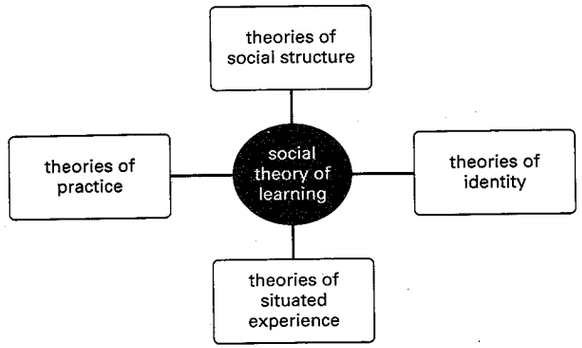

Figure 0.2. Two main axes of relevant traditions.

important to our argument, but they were not given the spotlight and were left largely unanalyzed.[2] In this book I have given these concepts center stage, explored them in detail, and used them as the main entry points into a social theory of learning.

Such a theory of learning is relevant to a number of disciplines, including anthropology, sociology, cognitive and social psychology, philosophy, and organizational and educational theory and practice. But the main tradition to which I think this work belongs – in terms of both influences and contributions – is social theory, a somewhat ill-defined field of conceptual inquiry at the intersection of philosophy, the social sciences, and the humanities.[3] In this context, I see a social theory of learning as being located at the intersection of intellectual traditions along two main axes, as illustrated in Figure 0.2. (In the notes I list, for each of the categories, some of the theories whose influence is reflected in my own work.)

In the tradition of social theory, the vertical axis is a central one. It reflects a tension between theories that give primacy to social structure and those that give primacy to action. A large body of work deals with clashes between these perspectives and attempts to bring them together.

- Theories of *social structure* give primacy mostly to institutions, norms, and rules. They emphasize cultural systems, discourses, and history. They seek underlying explanatory structures that account for social patterns and tend to view action as a mere realization of these structures in specific circumstances. The most extreme of them deny agency or knowledgeability to individual actors.[4]

- Theories of *situated experience* give primacy to the dynamics of everyday existence, improvisation, coordination, and interactional choreography. They emphasize agency and intentions. They mostly address the interactive relations of people with their environment. They focus on the experience and the local construction of individual or interpersonal events such as activities and conversations. The most extreme of them ignore structure writ large altogether.[5]

Learning as participation is certainly caught in the middle. It takes place through our engagement in actions and interactions, but it embeds this engagement in culture and history. Through these local actions and interactions, learning reproduces and transforms the social structure in which it takes place.

The horizontal axis – with which this book is most directly concerned – is set against the backdrop of the vertical one. It provides a set of midlevel categories that mediate between the poles of the vertical axis. Practice and identity constitute forms of social and historical continuity and discontinuity that are neither as broad as sociohistorical structure on a grand scale nor as fleeting as the experience, action, and interaction of the moment.

- Theories of *social practice* address the production and reproduction of specific ways of engaging with the world. They are concerned with everyday activity and real-life settings, but with an emphasis on the social systems of shared resources by which groups organize and coordinate their activities, mutual relationships, and interpretations of the world.[6]
- Theories of *identity* are concerned with the social formation of the person, the cultural interpretation of the body, and the creation and use of markers of membership such as rites of passage and social categories. They address issues of gender, class, ethnicity, age, and other forms of categorization, association, and differentiation in an attempt to understand the person as formed through complex relations of mutual constitution between individuals and groups.[7]

Here again, learning is caught in the middle. It is the vehicle for the evolution of practices and the inclusion of newcomers while also (and through the same process) the vehicle for the development and transformation of identities.

These two axes set the main backdrop for my theory, but it is worth refining the picture one step further with another set of intermediary

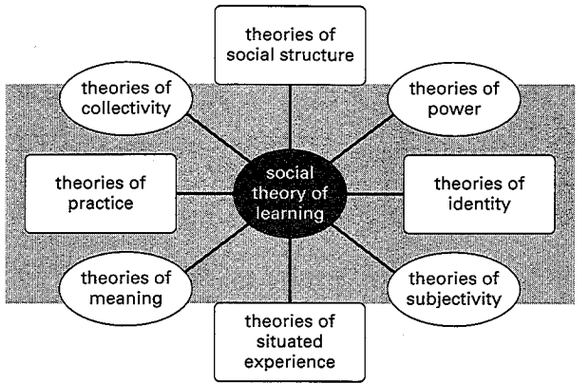

Figure 0.3. Refined intersection of intellectual traditions.

axes (see Figure 0.3). Indeed, while the vertical axis is a backdrop for my work, I shall have little to say about structure in the abstract or the minute choreography of interactions. I have therefore added these intermediary diagonal axes to introduce four additional concerns that are traditional in social theory but not quite as extreme as the poles of the vertical axis. For my purpose, they are as far as I go in the direction of social structure or situated experience. Hence, my domain of inquiry is illustrated by the horizontal shaded band. (Note that the resulting figure is not only an expansion of Figure 0.2 but also a refined version of Figure 0.1, outlining in a more detailed and rigorous fashion what I consider to be the components of a social theory of learning.)

One diagonal axis places social collectivities between social structure and practice, and individual subjectivity between identity and situated experience. Connecting the formation of collectivity and the experience of subjectivity on the same axis highlights the inseparable duality of the social and the individual, which is an underlying theme of this book.

- Theories of *collectivity* address the formation of social configurations of various types, from the local (families, communities, groups, networks) to the global (states, social classes, associations, social movements, organizations). They also seek to describe mechanisms of social cohesion by which these configurations are produced, sustained, and reproduced over time (solidarity, commitments, common interests, affinity).[8]

- Theories of *subjectivity* address the nature of individuality as an experience of agency. Rather than taking for granted a notion of agency associated with the individual subject as a self-standing entity, they seek to explain how the experience of subjectivity arises out of engagement in the social world.[9]

The other diagonal axis places power between social structure and identity, and meaning between practice and experience. As the axis suggests, connecting issues of power with issues of production of meaning is another underlying theme of this book.

- Theories of *power.* The question of power is a central one in social theory. The challenge is to find conceptualizations of power that avoid simply conflictual perspectives (power as domination, oppression, or violence) as well as simply consensual models (power as contractual alignment or as collective agreement conferring authority to, for instance, elected officials).[10]
- Theories of *meaning* attempt to account for the ways people produce meanings of their own. (These are different from theories of meaning in the philosophy of language or in logic, where issues of correspondence between statements and reality are the main concern.) Because this notion of meaning production has to do with our ability to "own" meanings, it involves issues of social participation and relations of power in fundamental ways. Indeed, many theories in this category have been concerned with issues of resistance to institutional or colonial power through local cultural production.[11]

The purpose of this book is not to propose a grandiose synthesis of these intellectual traditions or a resolution of the debates they reflect; my goal is much more modest. Nonetheless, that each of these traditions has something crucial to contribute to what I call a social theory of learning is in itself interesting. It shows that developing such a theory comes close to developing a learning-based theory of the social order. In other words, learning is so fundamental to the social order we live by that theorizing about one is tantamount to theorizing about the other.

Structure of the book

This book is divided into four sections:

1) the Prologue sets some contexts for the book
2) Part I, entitled *Practice,* addresses the left half of Figure 0.1 (and 0.3)

Part I

Practice

Intro I

The concept of practice

Being alive as human beings means that we are constantly engaged in the pursuit of enterprises of all kinds, from ensuring our physical survival to seeking the most lofty pleasures. As we define these enterprises and engage in their pursuit together, we interact with each other and with the world and we tune our relations with each other and with the world accordingly. In other words, we learn.

Over time, this collective learning results in practices that reflect both the pursuit of our enterprises and the attendant social relations. These practices are thus the property of a kind of community created over time by the sustained pursuit of a shared enterprise. It makes sense, therefore, to call these kinds of communities *communities of practice.*

Claims processors: a community of practice

Ariel and her colleagues do not come to Alinsu to form a community of practice; they come to earn a living. Gathered in Alinsu's office by their need for work, they want to fulfill their individual production quota. They want to make money in order to go on with their own lives, which they see taking place mostly outside of the office. They do focus on their work, but they keep glancing at the clock, waiting for the moment they are free to leave. For most of the time they spend at Alinsu, most of them would rather be somewhere else doing something else. Everyone knows this, employees and employer alike.

Yet the very longing to go home that pulls claims processors apart is also something they share, something that brings them together; it is something they take for granted and implicitly assume behind each other's remarks, something they discuss and joke about. It is something they deal with together. Working with others who share the same conditions is thus a central factor in defining the enterprise they engage in. With each other and against each other, with their employer and

against their employer, they collectively orchestrate their working lives and their interpersonal relations in order to cope with their job. Colluding and colliding, conspiring and conforming, it is collectively that they make claims processing what it is in practice.

Because the job can, in the abstract, be described in individual terms, it is easy to overlook the degree to which it is the community of practice that sustains the processors' ability to do their work. When I was talking with many senior managers to get permission to do my study, they expressed some surprise that I would want to study social learning in what they called a "paper assembly line." They took an individual, asocial, linear view of the job, which was reflected in policies and metrics, in training programs, and also in the computer system – with its fixed sequences of screens, designed for one person to process one claim at a time, from beginning to end.

These policies, metrics, training programs, and system designs were often at odds with the reality of their work. Indeed, as Vignette I shows, close examination yielded a completely different picture. I found that it is the collective construction of a local practice that, among other things, makes it possible to meet the demands of the institution. As a community of practice, claims processors make the job possible by inventing and maintaining ways of squaring institutional demands with the shifting reality of actual situations. Their practice:

1) provides resolutions to institutionally generated conflicts such as contradictions between measures and work – for instance, processing claims versus time on the phone
2) supports a communal memory that allows individuals to do their work without needing to know everything
3) helps newcomers join the community by participating in its practice
4) generates specific perspectives and terms to enable accomplishing what needs to be done
5) makes the job habitable by creating an atmosphere in which the monotonous and meaningless aspects of the job are woven into the rituals, customs, stories, events, dramas, and rhythms of community life.

Although claims processors may appear to work individually, and though their jobs are primarily defined and organized individually, processors become important to each other. When I asked them what they thought they would remember about this job later in life, the response

was almost always: "The people." They are quite aware of their interdependence in making the job possible and the atmosphere pleasant. They act as resources to each other, exchanging information, making sense of situations, sharing new tricks and new ideas, as well as keeping each other company and spicing up each other's working days.

Social practice

A *practice* is what these claims processors have developed in order to be able to do their job and have a satisfying experience at work. It is in this sense that they constitute a community of practice. The concept of practice connotes doing, but not just doing in and of itself. It is doing in a historical and social context that gives structure and meaning to what we do. In this sense, practice is always social practice.

Such a concept of practice includes both the explicit and the tacit. It includes what is said and what is left unsaid; what is represented and what is assumed. It includes the language, tools, documents, images, symbols, well-defined roles, specified criteria, codified procedures, regulations, and contracts that various practices make explicit for a variety of purposes. But it also includes all the implicit relations, tacit conventions, subtle cues, untold rules of thumb, recognizable intuitions, specific perceptions, well-tuned sensitivities, embodied understandings, underlying assumptions, and shared world views. Most of these may never be articulated, yet they are unmistakable signs of membership in communities of practice and are crucial to the success of their enterprises.

Of course, the tacit is what we take for granted and so tends to fade into the background. If it is not forgotten, it tends to be relegated to the individual subconscious, to what we all know instinctively, to what comes naturally. But the tacit is no more individual and natural than what we make explicit to each other. Common sense is only commonsensical because it is sense held in common. Communities of practice are the prime context in which we can work out common sense through mutual engagement. Therefore, the concept of practice highlights the social and negotiated character of both the explicit and the tacit in our lives.[1]

More generally, my usage of the concept of practice does *not* fall on one side of traditional dichotomies that divide acting from knowing, manual from mental, concrete from abstract. The process of engaging in practice always involves the whole person, both acting and knowing

at once. In practice, so-called manual activity is not thoughtless, and mental activity is not disembodied. And neither is the concrete solidly self-evident, nor the abstract transcendentally general; rather, both gain their meanings within the perspectives of specific practices and can thus obtain a multiplicity of interpretations.

The term *practice* is sometimes used as an antonym for theory, ideas, ideals, or talk. However, my use of the term does not reflect a dichotomy between the practical and the theoretical, ideals and reality, or talking and doing. Communities of practice include all of these, even if there are sometimes discrepancies between what we say and what we do, what we aspire to and what we settle for, what we know and what we can manifest. We all have our own theories and ways of understanding the world, and our communities of practice are places where we develop, negotiate, and share them.

Even when theory is a goal in itself, it is not detached but instead is produced in the context of specific practices. Some communities specialize in the production of theories, but that too is a practice. The distinction between theoretical and practical then refers to distinctions between enterprises rather than fundamental distinctions in qualities of human experience and knowledge.

The relation between practice and theory is always a complex, interactive one. From this perspective, theory is neither useless nor ideal. Practice is not immune to the influence of theory, but neither is it a mere realization of theory or an incomplete approximation of it. In particular, practice is not inherently unreflective.[2] Of course, a given community of practice may be, at various times, more or less reflective on the nature of its own practice. This is a very important characteristic with respect to the kind of learning that a community engages in. But it is a different issue than the existence of a dichotomy between theory and practice. Ethnographic accounts have provided little evidence to suggest that theoreticians are more likely than others to be reflective on the nature of their own practice. In fact, the formal character of their finished products may well hide the practical complexities and everyday processes from which they arise. Certainly, claims processors spend a lot of time in informal reflections, frequently talking about their own practices while at lunch and on breaks. They do not view themselves as theoreticians, but they always seemed to enjoy immensely answering my questions about their work and taking these conversations as opportunities to explore opinions and engage in a process of reflection.

Even when it produces theory, practice is practice. Things have to be done, relationships worked out, processes invented, situations interpreted, artifacts produced, conflicts resolved. We may have different enterprises, which give our practices different characters. Nevertheless, pursuing them always involves the same kind of embodied, delicate, active, social, negotiated, complex process of participation.

Structure of Part I

Part I is a discussion of the concept of practice and of the kind of social communities that practice defines. Each chapter addresses one basic aspect of practice. Note that, for presentation purposes, I start by talking about communities of practice in isolation, characterizing them in terms of their internal dynamics. I then talk about relations among communities of practice in the last two chapters.

- *Practice as meaning.* Chapter 1 sets the stage conceptually by arguing that the social production of meaning is the relevant level of analysis for talking about practice. In making that argument, I will introduce three basic concepts – negotiation of meaning, participation, and reification – that will serve as a foundation, not only for Part I, but for the whole book.
- *Practice as community.* Chapter 2 defines the concept of community of practice by talking about practice as the source of coherence of a community. I will introduce three dimensions of this relationship between practice and community: mutual engagement, a joint enterprise, and a shared repertoire of ways of doing things.
- *Practice as learning.* Chapter 3 addresses the development of communities of practice over time. Building on the themes of Chapter 1, I will discuss the factors of continuity and discontinuity that constitute a community of practice over time. Building on the themes of Chapter 2, I will argue that practice must be understood as a learning process and that a community of practice is therefore an emergent structure, neither inherently stable nor randomly changeable. I will end by talking about the learning by which newcomers can join the community and thus further its practice.
- *Practice as boundary.* Chapter 4 discusses the boundaries that practice creates. Building again first on the themes of Chapters 1 and 2, I will describe the types of connections that create bridges across boundaries and link communities of practice with the rest of the

world. I will end by arguing that boundaries of practice are not simple lines of demarcation between inside and outside, but form a complex social landscape of boundaries and peripheries.

- *Practice as locality.* Chapter 5 addresses the scope and limits of the concept of community of practice. I will discuss when to view a social configuration as one community or as a constellation of communities of practice. I will thus start talking about other levels of social structure, but still in terms of practice. I will leave the discussion of other types of structuring processes for Part II.
- *Knowing in practice.* Coda I ends this discussion of practice with a brief essay on knowing in practice. Echoing the argument of Part I, I will summarize the themes introduced in each chapter by using them to ponder what it means to know in practice. This will result in a definition of learning as an interplay of experience and competence.

Because Coda I gives an overview of Part I, it offers a logical starting point if you like to begin with an overview and are comfortable with terms that are not yet well-defined. You would first see – in a synoptic fashion and in a specific context – how the whole argument fits together, and then be able to obtain details by referring to individual chapters.

Chapter 1

Meaning

Our attempts to understand human life open a vast space of relevant questions – from the origin of the universe to the workings of the brain, from the details of every thought to the purpose of life. In this vast space of questions, the concept of practice is useful for addressing a specific slice: a focus on the experience of meaningfulness. Practice is, first and foremost, a process by which we can experience the world and our engagement with it as meaningful.

Of course, in order to engage in practice, we must be alive in a world in which we can act and interact. We must have a body with a brain that is functioning well enough to participate in social communities. We must have ways to communicate with one another. But a focus on practice is not merely a functional perspective on human activities, even activities involving multiple individuals. It does not address simply the mechanics of getting something done, individually or in groups; it is not a mechanical perspective. It includes not just bodies (or even coordinated bodies) and not just brains (even coordinated ones), but moreover that which gives *meaning* to the motions of bodies and the workings of brains.[1]

Let me illustrate this point by analogy to a work of art. There are all sorts of mechanics involved in producing a painting: a canvas, brushes, color pigments, and sophisticated techniques. The image itself is but a thin veneer. Yet in the end, for the painter and for the viewer, it is the painting as an experience of meaning that counts. Similarly, in the pursuit of our enterprises, we engage in all sorts of activities with complex bodies that are the result of millennia of evolution. Still, in the end, it is the meanings we produce that matter.

This focus on meaningfulness is therefore not primarily on the technicalities of "meaning." It is not on meaning as it sits locked up in dictionaries. It is not just on meaning as a relation between a sign and a reference. But neither is it on meaning as a grand question – on the

Coda II

Learning communities

I have argued in Coda I that learning involves an interaction between experience and competence. In communities of practice, the definition of competence and the production of experience are in very close interaction. Mutual engagement in a shared practice can thus be an intricate process of constant fine tuning between experience and competence. Because this process goes both ways, communities of practice are not only a context for the learning of newcomers but also, and for the same reasons, a context for new insights to be transformed into knowledge.[1]

- On the one hand, a community of practice is a living context that can give newcomers access to competence and also invite a personal experience of engagement by which to incorporate that competence into an identity of participation. When these conditions are in place, communities of practice are a privileged locus for the *acquisition* of knowledge.
- On the other hand, a well-functioning community of practice is a good context to explore radically new insights without becoming fools or stuck in some dead end. A history of mutual engagement around a joint enterprise is an ideal context for this kind of leading-edge learning, which requires a strong bond of communal competence along with a deep respect for the particularity of experience. When these conditions are in place, communities of practice are a privileged locus for the *creation* of knowledge.

This close interaction of experience and competence is a fertile ground for learning, but I have insisted that the two must remain in tension. If they settle down into a state of locked-in congruence, then learning slows down, and practice becomes stale. The concepts introduced in Part II can help describe the means by which a community of practice may keep this tension alive and thus be a learning community. Such a community includes learning, not only as a matter of course in

the history of its practice, but at the very core of its enterprise. As a way to build a characterization of a learning community, I will briefly rehearse the themes of each chapter in Part II.

Learning and identity in practice

Because learning transforms who we are and what we can do, it is an experience of identity. It is not just an accumulation of skills and information, but a process of becoming – to become a certain person or, conversely, to avoid becoming a certain person. Even the learning that we do entirely by ourselves eventually contributes to making us into a specific kind of person. We accumulate skills and information, not in the abstract as ends in themselves, but in the service of an identity. It is in that formation of an identity that learning can become a source of meaningfulness and of personal and social energy.

Viewed as an experience of identity, learning entails both a process and a place. It entails a process of transforming knowledge as well as a context in which to define an identity of participation. As a consequence, to support learning is not only to support the process of acquiring knowledge, but also to offer a place where new ways of knowing can be realized in the form of such an identity. If someone fails to learn as expected, it may therefore be necessary to consider, in addition to possible problems with the process, the lack of such a place as well as the competition of other places. In order to redirect learning, it may be necessary to offer learners alternative forms of participation that are as much a source of identity as they are finding elsewhere. The transformative practice of a learning community offers an ideal context for developing new understandings because the community sustains change as part of an identity of participation.

As a trajectory, an identity must incorporate a past and a future. Learning communities will become places of identity to the extent they make trajectories possible – that is, to the extent they offer a past and a future that can be experienced as a personal trajectory. In this regard, a community can strengthen the identity of participation of its members in two related ways:

1) by incorporating its members' pasts into its history – that is, by letting what they have been, what they have done, and what they know contribute to the constitution of its practice
2) by opening trajectories of participation that place engagement in its practice in the context of a valued future.

Similarly, I have argued that the experience of multimembership can become so private that it no longer fits within the enterprise of any community. The potentially difficult work of reconciliation can be facilitated by communities that endeavor to encompass, within their own practice, an increasing portion of the nexus of multimembership of their members. For instance, some workplaces are taking steps to reduce the chasm between family and work responsibilities. In other words, the work of reconciliation can be integrated in the community's enterprise and thus, to some extent, become part of a shared learning practice. Such communities will not only gain the allegiance of their members, they will also enrich their own practices.

Participation and non-participation: peripherality and marginality

When a community makes learning a central part of its enterprise, useful wisdom is not concentrated at the core of its practice. There is a wisdom of peripherality – a view of the community that can be lost to full participants. It includes paths not taken, connections overlooked, choices taken for granted. But this kind of wisdom often remains invisible even to those who hold its potential, because it can easily become marginalized within established regimes of competence. Note that there are two kinds of marginality involved here, reflecting the community–identity duality:

1) marginalities of *competence* – certain members are not full participants
2) marginalities of *experience* – certain experiences are not fully accountable to the regime of competence because they are repressed, despised, feared, or simply ignored.

Of course, these two kinds of marginality often overlap, but not always. Full participants are not immune to marginal experience.

Turning marginalities into peripheral wisdom requires identities that can play with participation and non-participation. When learning communities make such experiments a part of their regime of competence, the risks associated with exploration are not a threat to one's membership: taking risks at the margins does not imply exclusion. Note that this process does not imply weakening the core of the practice, which would leave little difference between exploration and floundering. The solidity of a shared history of practice is a social resource

for further learning that must be put to work rather than dismissed. Learning communities do have a strong core, but they let peripheral and core activities interact, because it is in these interactions that they are likely to find the new experiences and new forms of competence necessary to create new knowledge. When a learning community – secure in its history of participation but encouraged and humbled by its excursions of non-participation – turns its searching gaze upon itself, it is mostly in the potential of its marginalities that it must look for the promise of its unrealized wisdoms.

Combining modes of belonging

Engagement, imagination, and alignment are all important ingredients of learning – they anchor it in practice yet make it broad, creative, and effective in the wider world. Since each mode of belonging involves trade-offs, combining them enables them to compensate for each other's shortcomings. Such combinations allow a learning community to move in various ways between participation and non-participation in order to create a richer context for learning.

The combination of engagement and imagination results in a *reflective* practice.[2] Such a practice combines the ability both to engage and to distance – to identify with an enterprise as well as to view it in context, with the eyes of an outsider. Imagination enables us to adopt other perspectives across boundaries and time, to visit "otherness" and let it speak its own language. It also allows us to include history in our sense of the present and to explore possible futures. It can produce representations and models that trigger new interpretations. In turn, engagement provides a place for imagination to land, to be negotiated in practice and realized into identities of participation. This process requires an opening of participation that allows imagination to have effects beyond itself so we may learn from it by bringing it back into a form of engagement. Otherwise, imagination is just an escape or a phantasm that merely reproduces current limitations and patterns of engagement. For instance, there is no point going on a retreat, a visit, or a sabbatical unless the new perspectives we gain in the process can find a realization in a new form of engagement upon our return. The required opening of participation is both personal and communal. Our identities must be able to absorb our new perspectives and make them part of who we are. And our communities must have a place for us that does justice to the transformations of identity that reflection and excursions can produce.

The combination of imagination and alignment produces the ability to act with respect to a broad and rich picture of the world. We align our activities and we understand why. We have a vision and it helps us situate what we are doing and make it effective. We have a big picture and we do something about it in concert with others. We can therefore embrace that big picture as part of our identity because it reflects the scope of our imagination as well as the scope of effects of our actions. In this process, our alignment can become more robust because it is part of a broad understanding of what it is about. Imagination thus helps us direct our alignment in terms of its broader effects, adapt it under shifting circumstances, and fine tune it intelligently, especially when things like instructions are unclear or inapplicable. This is the power of imagination when it is anchored in a process of alignment.

The combination of engagement and alignment brings various perspectives together in the process of creating some coordination between them. There is something unique that we can come to understand when our diverse perspectives converge in our attempts to align them for some purpose. The need to coordinate practices through mutual engagement translates into an exploration of boundaries that can serve to expand the possibilities for learning and identity on both sides. In negotiating alignment across discontinuities, we can be forced to perceive our own positions in new ways, to have new questions, to see things we had never seen before, and to derive new criteria of competence that reflect the alignment of practices. We may have to redefine our enterprises and see our own participation in a broader context. From our misunderstandings we may come to comprehend, in striking and expanded ways, the historical particularities and the ambiguities of our own actions and artifacts. In the process our views bounce back, reinterpreted. In this regard, I have argued that multimembership is a critical source of learning because it forces an alignment of perspectives in the negotiation of an engaged identity. Identity then becomes a living bridge – the dynamic locus of alignment – the subject and the object of the work of reconciliation necessary to bring diverging perspectives together, understand them through each other, and find a way to engage them with one another.

Combining these modes of belonging is not only a matter of finding ways in which they overlap; it is also a matter of timing. There are seasons for various combinations of each, and part of a learning community's task is to understand the rhythms of its own learning in order to find optimal opportunities for combining these modes.[3]

Reconfiguring identification and negotiability

If learning involves the ability to negotiate new meanings and become a new person, then it also involves new relations of identification and negotiability, new forms of membership and ownership of meaning, and thus changing positions within communities and economies of meaning. In this context, a learning community must pay attention to the cost of membership and to the blinders it creates, remembering that letting go of one's identity is both a loss and a liberation.

Identification and negotiability are structural issues. They cannot be manipulated in a vacuum because they are defined within systems of social relations with structural interdependencies. They are not just issues of motivation that can be addressed independently of content. From this standpoint, learning is a process of social reconfiguration. It transforms communities and economies of meaning. For instance, enabling children to grow up in the context of a family involves a structural transformation of that family as much as developmental changes in the members involved.

A learning community confronts structural issues of identification and negotiability both internally and externally.

- *Internally,* learning is a reconfiguration of its own structure as community and economy of meaning. For instance, differences in ownership of meaning distinguish newcomers and old-timers. Newcomers may identify with a community as much as old-timers do, and they may engage in many of the same activities. Nonetheless, their ability – both in terms of capability and legitimacy – to determine for themselves the value and appropriateness of their actions and the artifacts they produce does not belong to them yet. For newcomers to become full members they must gain new positions in the economy of meaning. Similarly, many of the characteristics of a learning community described in this coda (opening trajectories, core–periphery interactions, exploring marginalities) require processes of reconfiguration.
- *Externally,* a learning community confronts issues of identification and negotiability through its position in broader configurations. For claims processors to gain increased ownership of the meanings of their activities and artifacts would involve a reconfiguration not only of their own community, but also of their relations with other practices and of the economies of meaning in which they are to take new

> responsibilities for the meanings of what they do. Indeed, learning within a community does not necessarily lead to an increased level of negotiability in a broader context. An internal reconfiguration may reflect our new identities, understandings, perspectives, and skills. Yet, once we see our own practices as located in broader economies of meaning, we may come to the conclusion that the meanings we learn to produce locally have little currency in the wider scheme of things. It is therefore incumbent on a learning community to deal with its position in various communities and economies and with respect to various enterprises, styles, and discourses. It must seek the reconfigurations necessary to make its learning empowering – locally and in other relevant contexts.

A learning community is therefore fundamentally involved in social reconfiguration: its own internally as well as its position within broader configurations.

Reconfiguring relations of identification and negotiability is as significant for learning as is access to specific pieces of information. Issues like the acquisition of specific subject matters, involvement in civic concerns, and people's relations to their jobs are actually implicated in the structure of economies of meaning, even though they are often cast in terms of personal choices and abilities. Hence a notion like "information society" does not displace, but indeed begs the question of, identity. Of course, availability of information is important in supporting learning. But information by itself, removed from forms of participation, is not knowledge; it can actually be disempowering, overwhelming, and alienating. Looking at a very technical article full of indecipherable formulas can confirm in a very stark fashion our lack of negotiability. Access to information without negotiability serves only to intensify the alienating effects of non-participation.

What makes information knowledge – what makes it empowering – is the way in which it can be integrated within an identity of participation. When information does not build up to an identity of participation, it remains alien, literal, fragmented, unnegotiable. It is not just that it is disconnected from other pieces of relevant information, but that it fails to translate into a way of being in the world coherent enough to be enacted in practice. Therefore, to know in practice is to have a certain identity so that information gains the coherence of a form of participation. In making information more widely available, what the technological advances of a so-called information society really do is

create wider, more complex, and more diversified economies of meaning and communities. With respect to the potential for learning communities, issues of identification and negotiability are then heightened, not transcended.

Epilogue

Design

Synopsis

Design for learning

Learning cannot be designed. Ultimately, it belongs to the realm of experience and practice. It follows the negotiation of meaning; it moves on its own terms. It slips through the cracks; it creates its own cracks. Learning happens, design or no design.

And yet there are few more urgent tasks than to design social infrastructures that foster learning. This is true not only of schools and universities, but also of all sorts of organizations in the public and private sectors, and even of entities usually not called organizations, like states and nations. In fact, the whole human world is itself fast becoming one large organization, which is the object of design and which must support the learning we need in order to ensure there is to be a tomorrow. Those who can understand the informal yet structured, experiential yet social, character of learning – and can translate their insight into designs in the service of learning – will be the architects of our tomorrow.

By way of conclusion, I will use the concepts introduced in this book to discuss some issues of design as they relate to learning and practice, and by extension to community and identity. This discussion will do two things. It will provide a summary of the main themes and, at the same time, illustrate the use that can be made of the conceptual framework I have outlined.

A perspective on learning

I have argued that the perspectives we bring to our endeavors are important because they shape both what we perceive and what we do. As a prelude to talking about design, I will start with a quick review of the perspective on learning inherent in this book. Although my examples were drawn mostly from the workplace, the relevance of the concepts I introduced is not limited to work settings; it extends to all kinds of settings, including the school, the playground, the street, and

the home. In fact, seen from the perspective of this book, learning in all these settings is more similar than different.

What claims processors learn is clearly the practice of a specific, easily identifiable community, one whose history is a response to the explicit demands of an institutionalized corporation. But what about the learning we do while reading newspapers or watching television, resolving a conflict among our children, learning how to cook Chinese food or how to use a new program on our personal computer? Indeed, we often learn without having any intention of becoming full members in any specifiable community of practice, or for that matter in any other kind of community.

Yet, the relevance of a social perspective is not limited to special situations of learning, because all learning eventually gains its significance in the kind of person we become – whether we are in a school, on a job, at a rally, among our kin, or watching television. This does not mean that all learning is best done in interaction with others. Just as there are tasks that are best done in groups and others that are best done by oneself, some learning is best done in groups and some learning is best done by oneself. At issue is what defines learning as learning. For instance, is reading a mystery novel an act of learning? What about a serious novel? What about a casual conversation at a party? What about a formal meeting? The difference between mere doing and learning, or between mere entertainment and learning, is not a difference in kind of activity. It is not that one is mindless and the other thoughtful, that one is hard and the other easy, or that one is fun and the other arduous. It is that learning – whatever form it takes – changes who we are by changing our ability to participate, to belong, to negotiate meaning. And this ability is configured socially with respect to practices, communities, and economies of meaning where it shapes our identities.

This social perspective on learning may be summarized succinctly by the following principles.

- *Learning is inherent in human nature:* it is an ongoing and integral part of our lives, not a special kind of activity separable from the rest of our lives (Introduction).
- *Learning is first and foremost the ability to negotiate new meanings:* it involves our whole person in a dynamic interplay of participation and reification. It is not reducible to its mechanics (information, skills, behavior), and focusing on the mechanics at the expense of meaning tends to render learning problematic (Chapter 1).

- *Learning creates emergent structures:* it requires enough structure and continuity to accumulate experience and enough perturbation and discontinuity to continually renegotiate meaning. In this regard, communities of practice constitute elemental social learning structures (Chapter 3).
- *Learning is fundamentally experiential and fundamentally social:* it involves our own experience of participation and reification as well as forms of competence defined in our communities (Chapter 2). In fact, learning can be defined as a realignment of experience and competence, whichever pulls the other. It is therefore impaired when the two are either too distant or too closely congruent to produce the necessary generative tension (Coda I).
- *Learning transforms our identities:* it transforms our ability to participate in the world by changing all at once who we are, our practices, and our communities (Chapter 3).
- *Learning constitutes trajectories of participation:* it builds personal histories in relation to the histories of our communities, thus connecting our past and our future in a process of individual and collective becoming (Chapters 3 and 6).
- *Learning means dealing with boundaries:* it creates and bridges boundaries; it involves multimembership in the constitution of our identities, thus connecting – through the work of reconciliation – our multiple forms of participation as well as our various communities (Chapters 4 and 6).
- *Learning is a matter of social energy and power:* it thrives on identification and depends on negotiability; it shapes and is shaped by evolving forms of membership and of ownership of meaning – structural relations that combine participation and nonparticipation in communities and economies of meaning (Chapters 7 and 9).
- *Learning is a matter of engagement:* it depends on opportunities to contribute actively to the practices of communities that we value and that value us, to integrate their enterprises into our understanding of the world, and to make creative use of their respective repertoires (Chapters 2 and 8).
- *Learning is a matter of imagination:* it depends on processes of orientation, reflection, and exploration to place our identities and practices in a broader context (Chapter 8).

- *Learning is a matter of alignment:* it depends on our connection to frameworks of convergence, coordination, and conflict resolution that determine the social effectiveness of our actions (Chapter 8).
- *Learning involves an interplay between the local and the global:* it takes place in practice, but it defines a global context for its own locality. The creation of learning communities thus depends on a dynamic combination of engagement, imagination, and alignment to make this interplay between the local and the global an engine of new learning (Chapter 5, Coda II).

Design and practice

By "design" I mean a systematic, planned, and reflexive colonization of time and space in the service of an undertaking.[1] This perspective includes not only the production of artifacts, but also the design of social processes such as organizations or instruction. Indeed, organizational design and instructional design have become disciplines in their own right.

In any discussion of design for learning, it is important to reiterate that communities of practice have been around for a very long time. They are as old as humankind and existed long before we started to concern ourselves with systematic design for learning. Communities of practice already exist throughout our societies – inside and across organizations, schools, and families – in both realized and unrealized forms.

1) Some are *potential.* They are possible communities among people who are related somehow, and who would gain from sharing and developing a practice together.
2) Some are *active.* They function as communities of practice, actively pursuing an enterprise, negotiating their forms of participation, and developing their own histories.
3) Some are *latent.* They exist as a kind of "diaspora" among people who share past histories and can use these histories as resources.

Communities of practice are thus not a novelty. They are not a new solution to existing problems; in fact, they are just as likely to have been involved in the development of these problems. In particular, they are not a design fad, a new kind of organizational unit or pedagogical device to be implemented.

Communities of practice are about content – about learning as a living experience of negotiating meaning – not about form. In this sense, they cannot be legislated into existence or defined by decree. They can be recognized, supported, encouraged, and nurtured, but they are not reified, designable units. Practice itself is not amenable to design. In other words, one can articulate patterns or define procedures, but neither the patterns nor the procedures produce the practice as it unfolds. One can design systems of accountability and policies for communities of practice to live by, but one cannot design the practices that will emerge in response to such institutional systems. One can design roles, but one cannot design the identities that will be constructed through these roles. One can design visions, but one cannot design the allegiance necessary to align energies behind those visions. One can produce affordances[2] for the negotiation of meaning, but not meaning itself. One can design work processes but not work practices; one can design a curriculum but not learning. One can attempt to institutionalize a community of practice, but the community of practice itself will slip through the cracks and remain distinct from its institutionalization.

This perspective suggests an addition to the list of principles just presented:

- *Learning cannot be designed:* it can only be designed *for* – that is, facilitated or frustrated.

Structure of the Epilogue

The Epilogue contains three chapters.

- Chapter 10 outlines a skeletal "architecture" for learning derived from the argument of this book. By this I mean that I will recast the conceptual framework developed so far into a design framework, laying out basic questions that must be addressed and basic components that must be provided by a design for learning.
- Chapters 11 and 12 apply this design framework in discussing two kinds of design that involve learning in a crucial way: organizations and education. There are many ways in which these two kinds of endeavor differ, but both must provide institutional support for learning and, in this respect, have much in common. These two domains of application are only examples. There are many other potential domains of application, including technology, facilities, marketing, and government.