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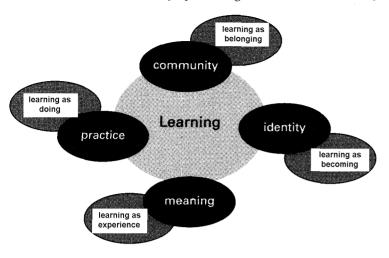
Figure 0.1. Components of a social theory of learning: an initial inventory.

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
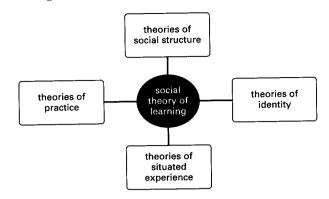
Figure 0.2. Two main axes of relevant traditions.

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 every-day existence, improvisation, coordination, and interactional chore-ography. 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
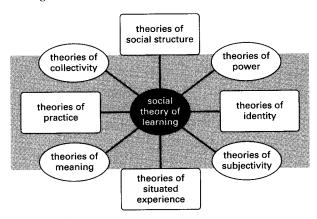
Figure 0.3. Refined intersection of intellectual traditions.

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)

3) Part II, entitled *Identity*, addresses the right half of Figure 0.1 (and 0.3)
4) the Epilogue explores the implications of Parts I and II for design.

Each part includes a brief introduction that presents the topic of the section and outlines its structure with a synopsis of each chapter, as well as a coda – a short essay that wraps up the section by using its content to address a specific topic.

Prologue: vignettes

The rest of this prologue contains two vignettes that describe one community of practice. In 1989–90 I did some ethnographic fieldwork in a medical claims processing center operated by a large U.S. insurance company, which I will refer to by the pseudonym of Alinsu. The claims processors handled health insurance claims of the kind many of us are familiar with, sent in by people who were covered by a plan purchased by their employer.[12]

- *Vignette I* is a fairly detailed account of one working day in the life of a claims processor. It is meant to provide a view of a community of practice from the standpoint of a participant. Ariel, as I will call her, is representative of the claims processors, but she is a composite character. The day I describe is representative of a real day and is a collection of actual events, although I did not observe them all on the same day.
- *Vignette II* describes the use of one worksheet created by Alinsu to facilitate a calculation. This case illustrates the type of problems that can arise when workers are asked to perform procedural activities without a good understanding of what the activities are about.
- *Coda 0* summarizes the vignettes by introducing a perspective on understanding.

I include these vignettes to give some life to my theoretical development, and will often refer to the claims processors to illustrate what I say. However, these examples are mostly self-explanatory and so reading the vignettes is not an absolute necessity. Vignette II is mostly useful for Chapter 9, and even if you skip the vignettes, you still might want to look at Figure 0.4. I will refer on many occasions to the calculation worksheet it displays.

Part I: Practice

Part I provides a series of characterizations of the concept of community of practice, including:

1) the level of analysis at which the concept of practice is useful
2) the defining characteristics of a community of practice
3) the evolution of communities of practice over time
4) boundaries and relations among communities of practice
5) constellations formed by interrelated communities of practice.

Part I ends with an essay on "knowing in practice."

Part II: Identity

Part II focuses on identity. This shift of focus from practice to identity within the same analytical perspective has the following consequences.

1) It injects the notion of the person into the theory without having to posit an individual subject to start with.
2) It expands the domain of inquiry to social configurations other than those defined by practice and to mechanisms by which these configurations become contexts for identity formation.
3) It requires a theory of power by which to characterize the formation of identity in practice as the ability to negotiate an experience of meaning.

Part II thus complements Part I. It argues for a dual relation between practice and identity, and it addresses some limitations of the concept of community of practice by locating it within a broader framework. Part II ends with an essay on "learning communities."

Epilogue: Design

By way of conclusion, I discuss issues of design and learning. I first use the contents of Parts I and II to describe the dimensions and components of a design oriented to learning. Then I use this framework to discuss two kinds of social design:

1) organizations and their relation to practice
2) education and the formation of identities.

Chapter 12
Education

Education, in its deepest sense and at whatever age it takes place, concerns the opening of identities – exploring new ways of being that lie beyond our current state. Whereas training aims to create an inbound trajectory targeted at competence in a specific practice, education must strive to open new dimensions for the negotiation of the self. It places students on an outbound trajectory toward a broad field of possible identities. Education is not merely formative – it is transformative.

In this chapter, I will argue that issues of education should be addressed first and foremost in terms of identities and modes of belonging (as discussed in Part II), and only secondarily in terms of skills and information. To make this argument, I will adopt much the same structure as in the previous chapter. Again, I will have two main sections that apply the framework of Chapter 10.

1) I will first use the four dimensions of design introduced there to discuss issues of educational design.
2) I will then use the framework of the three modes of belonging and of learning communities to discuss education as a process of identity transformation.

This discussion assumes neither that education takes place in schools as we know them nor that education is for children. In fact, once education is understood in terms of identity, it may no longer seem such a good idea to front-load "education" at the beginning of a life. Identity formation is a lifelong process whose phases and rhythms change as the world changes. From this perspective, we need to think about education not merely in terms of an initial period of socialization into a culture, but more fundamentally in terms of rhythms by which communities and individuals continually renew themselves. Education thus becomes a mutual developmental process between communities and individuals, one that goes beyond mere socialization. It is an investment

of a community in its own future, not as a reproduction of the past through cultural transmission, but as the formation of new identities that can take its history of learning forward.

Dimensions of educational design

To the extent that education involves design, it involves the kinds of issues listed in Chapter 10:

1) *participation and reification* – how much to reify learning, its subject and its object
2) *the designed and the emergent* – the relation between teaching and learning is not one of simple cause and effect
3) *the local and the global* – educational experiences must connect to other experiences
4) *identification and negotiability* – there are multiple perspectives on what an educational design is about: its effect on learning depends on inviting identities of participation.

Each of the following sections introduces a set of trade-offs and questions related to the dimension under consideration, with illustrations drawn mainly from traditional issues of schooling.

Participation and reification: learning as negotiation

One activity traditionally associated with educational design is the codification of knowledge into a reified subject matter, for instance, in the form of a textbook or a curriculum. This kind of educational reification creates an intermediary stage between practices and learners. Common examples are the use of grammatical categories to teach language or the use of word problems to connect mathematics to everyday situations. Because of this additional step, making sense of the reification becomes an additional problem that may not exist in practice. Reification is therefore potentially a hurdle as well as a help to learning. In other words, there is a pedagogical cost to reifying in that it requires additional work – even, possibly, a new practice – to make sense of the reification.

Reifying knowledge for educational purposes offers something visible and fixed for newcomers to vie for in their quest for full membership, but it does not guarantee access to the relevant forms of participation. In fact, by reducing knowing to reified items, the codification of

knowledge may create the illusion of a simple, direct, unproblematic relation between individual learners and elements of a subject matter. Reification may seem to lift knowledge out of practice, and thus to obviate the need for (and complexities of) participation. And yet, what the subject matter comes to mean in the lives of learners still depends on the forms of participation available to them.

To the extent that knowledge is reified, decontextualized, or proceduralized, learning can lead to a literal dependence on the reification of the subject matter, and thus (as I argued in Chapter 9) to a brittle kind of understanding with very narrow applicability. This is especially true if the delivery of codified knowledge takes place away from actual practice, with a focus on instructional structure and pedagogical authority that discourages negotiation. As a form of educational design, the reification of knowledge is thus not in itself a guarantee that relevant or applicable learning will take place. In fact, it can be misleading in that evaluation processes reflecting the structure of a reified curriculum are circular. Students with a literal relation to a subject matter can reproduce reified knowledge without attempting to gain some ownership of its meaning. An evaluation process will become more informative regarding the learning that has actually taken place to the extent that its structure does not parallel that of instruction too closely, but instead conforms to the structure of engagement in actual practice and the forms of competence inherent in it.

I am not claiming that the reification of knowledge is harmful. Codifying knowledge is a useful exercise, one whose value as a tool of reflection extends even beyond its pedagogical purpose. My point is that educational design is not primarily about such reification, but more fundamentally about pondering when to reify and when to rely on participation. It is about balancing the production of reificative material with the design of forms of participation that provide entry into a practice and let the practice itself be its own curriculum, as described in Chapter 3.

In this balancing act, the primary focus must be on the negotiation of meaning rather than on the mechanics of information transmission and acquisition. Of course, there are mechanics involved in learning – processes of perception and memory, development of automatisms and skills, accumulation and processing of information, structuring of activities, and changes in behavior. While the mechanics of learning do need to be in place, they need not take center stage or become the primary focus of educational design.

- Focusing on the mechanics of learning at the cost of meanings tends to render learning itself problematic by reifying learning as a process and participants as learners. Learning a new word, for instance, is much more difficult if the purpose is to memorize it in a list rather than include it in meaningful activities.
- In many cases, when the meanings of learning are properly attended to, the mechanics take care of themselves. We learn to speak a language so successfully by immersion in part because we are focused on the experience of meaning rather than on the mechanics of learning.

In practice, it is in the meanings we are able to negotiate through learning that we invest ourselves, and it is those meanings that are the source of the energy required for learning.

Questions of the kind derived from this dimension of educational design include the following.

1) To what degree should the subject matter be reified for educational purposes?
2) What forms of participation are required to give meaning to the subject matter?
3) How much should learning itself be reified as a process?
4) At what point is such reification more a distraction than a help?
5) What forms of participation can be designed that do not require reification of the subject matter beyond what is already part of the practice?

The designed and the emergent: teaching and learning

A focus on teaching is not equivalent to a focus on learning. The two are not even mirror images. In an instructional context, such as a school classroom or a training session, the reification of learning combined with institutional authority can easily create the impression that it is teaching that causes learning. Yet the learning that actually does take place is but a response to the pedagogical intentions of the setting. Instruction does not cause learning; it creates a context in which learning takes place, as do other contexts.

- Learning and teaching are not inherently linked. Much learning takes place without teaching, and indeed much teaching takes place without learning.
- To the extent that teaching and learning are linked in practice, the linkage is one not of cause and effect but of resources and negotiation.

In other words, teaching does not cause learning: what ends up being learned may or may not be what was taught, or more generally what the institutional organization of instruction intended. Learning is an emergent, ongoing process, which may use teaching as one of its many structuring resources. In this regard, teachers and instructional materials become resources for learning in much more complex ways than through their pedagogical intentions, an important theme to which I shall return shortly.[1]

Pedagogical debates traditionally focus on such choices as authority versus freedom, instruction versus discovery, individual versus collaborative learning, or lecturing versus hands-on experience. But the real issue underlying all these debates is the interaction of the planned and the emergent. Teaching must be opportunistic because it cannot control its own effects. Opportunism does not mean laissez-faire. At issue is not authority per se but the extent to which it thwarts the negotiation of meaning. For that matter, laissez-faire, too, can prevent negotiation by offering no proposals around which to organize it. What matters is the interaction of the planned and the emergent – that is, the ability of teaching and learning to interact so as to become structuring resources for each other.

Questions of the kind derived from this dimension of educational design include the following.

1) How can we honor the emergent character of learning?
2) How can we minimize teaching so as to maximize learning?
3) What kind of rhythm and shifts of focus will allow learning and teaching to inform each other?
4) How can we maximize the processes of negotiation of meaning enabled by that interaction?

The local and the global: from practice to practice

To the extent that educational design spawns its own practices, they will tend to have their own localism, their own regimes of competence, and even their own internal generational encounters. That a classroom, for instance, is the result of educational design does not guarantee a wider scope of relevance for what is learned there than what is learned anywhere else. In fact, as I argued in Chapter 4, if school practices become self-contained then they cease to point anywhere beyond themselves. School learning is just learning school.

From that perspective, applying what one has learned in a classroom becomes a matter of moving from one practice to another. In this respect, there is not that much difference between the schoolhouse and the claims processing center. Both are local practices that have specific relations to the rest of the world. That each setting gives rise to local practices does not mean that what both groups learn in their respective practices has no relevance anywhere else. Learning in practice is not necessarily parochial. On the contrary, what participants learn in both settings becomes part of their identities, and is thus carried into other parts of their lives. But what their learning will mean in the broader context of their lives – how it will become knowing that will shape their overall trajectories and their broader experience of the world – is in both cases the same open question.

I started by saying that while training focuses on specific practices, education has a broader scope. Educational design is thus caught in a tension between the local and the global. In this tension, the challenge is to balance the scope of educational experience with the locality of engagement, the need to be detached from practice with the need to be connected to it. The traditional approach to this conundrum is informational: to seek generality in more abstract formulations that have a wider range of applicability and subsume other practices under an overarching, self-contained educational program. But there is a problem with this approach: it confuses abstraction and generality. The ability to apply learning flexibly depends not on abstraction of formulation but on deepening the negotiation of meaning. This in turn depends on engaging identities in the complexity of lived situations. I would argue that the problem of generality is not just an informational question; it is more fundamentally a question of identity, because identity is the vehicle that carries our experiences from context to context.

From this perspective, schools gain relevance not just by the content of their teaching – much of which can be acquired just as well in other circumstances – but by the experiments of identity that students can engage in while there. Consequently, deep transformative experiences that involve new dimensions of identification and negotiability, new forms of membership, multimembership, and ownership of meaning – even in one specific or narrowly defined domain – are likely to be more widely significant in terms of the long-term ramifications of learning than extensive coverage of a broad, but abstractly general, curriculum.

Questions of the kind derived from this dimension of educational design include the following.

1) How can we broaden the scope of coverage without losing the depth of local engagement?
2) How can we create links to other practices so that education does not become self-contained?
3) How can we enable transformative experiences that change students' understanding of themselves as learners and thus their ability to move among practices and learn whatever they need to learn where they are?

Identification and negotiability: identities of participation

An educational design faces issues of identification and negotiability at multiple levels. To the extent that it is a process of colonizing learning, of claiming a territory, of deciding what matters, and of defining success and failure, it is a contested terrain. Like organizational design, it involves a whole constellation of practices, but can differentially privilege the various perspectives of specific communities.

In this context, an educational design competes with other sources of identification and negotiability. One problem of the traditional classroom format is that it is both too disconnected from the world and too uniform to support meaningful forms of identification. It offers unusually little texture to negotiate identities: a teacher sticking out and a flat group of students all learning the same thing at the same time. Competence, thus stripped of its social complexity, means pleasing the teacher, raising your hand first, getting good grades. There is little material with which to fashion identities that are locally differentiated and broadly connected. It is no surprise, then, that the playground tends to become the centerpiece of school life (and of school learning), that the classroom itself becomes a dual world where instruction must compete with message passing, and that some students either seek their identity in subversive behavior or simply refuse to participate.[2]

If an institutional setting for learning does not offer new forms of identification and negotiability – that is, meaningful forms of membership and empowering forms of ownership of meaning – then it will mostly reproduce the communities and economies of meaning outside of it. It will not open new trajectories of participation unless they are already opened somewhere else. Focusing on an institutionalized curriculum without addressing issues of identity thus runs the risk of serving only those who already have an identity of participation with respect to the material in other contexts. Others must be willing to abandon their

claim to ownership of meaning, have but a literal relation to information, and live with that kind of identity. In fact, for many students, school presents a choice between a meaningful identity and learning – a choice that creates a conflict between their social and personal lives and their intellectual engagement in school.[3] What appears to be a lack of interest in learning may therefore not reflect a resistance to learning or an inability to learn. On the contrary, it may reflect a genuine thirst for learning of a kind that engages one's identity on a meaningful trajectory and affords some ownership of meaning. To an institution focused on instruction in terms of reified subject matters sequestered from actual practice, this attitude will simply appear as failure to learn.

In terms of learning, identification with or alienation from an institution of learning will have deeper effects than success or failure in acquiring elements of a curriculum. For instance, many claims processors report that their experience of schooling was one of institutional marginalization. But the institutional relations they find at work are not that different. When institutionally marginalized students leave school, taking institutionally marginalized jobs such as claims processing at Alinsu fits in with what they have learned in school. It merely extends the trajectory and institutional identity that schooling has offered them.[4]

Questions of the kind derived from this dimension of educational design include the following.

1) Which sources of identification does an educational design compete with and which does it offer?
2) What broader economies of meaning is it part of? What kinds of economies of meaning does it generate internally? And how are the two articulated?
3) For whom is the design an opportunity to build an identity of participation?
4) Who defines success and failure, and how is this definition negotiated among the parties involved?

Education and identity: a learning architecture

To talk about a learning architecture that addresses some of the issues just raised, I will use the framework introduced in Chapter 10 with infrastructures of engagement, imagination, and alignment. Talking about learning in terms of these modes of belonging makes it possible to consider educational designs not just in terms of the delivery

of a curriculum, but more generally in terms of their effects on the formation of identities. Students need:

1) places of engagement
2) materials and experiences with which to build an image of the world and themselves
3) ways of having an effect on the world and making their actions matter.

From this perspective the purpose of educational design is not to appropriate learning and institutionalize it into an engineered process, but to support the formation of learning communities of the kind described in Coda II.

Once learning communities are truly functional and connected to the world in meaningful ways, teaching events can be designed around them as resources to their practices and as opportunities to open up their learning more broadly. Again, there is a profound difference between viewing educational design as the source or cause of learning and viewing it as a resource to a learning community.

Educational engagement

The first requirement of educational design is to offer opportunities for engagement. Learners must be able to invest themselves in communities of practice in the process of approaching a subject matter. Unlike in a classroom, where everyone is learning the same thing, participants in a community of practice contribute in a variety of interdependent ways that become material for building an identity. What they learn is what allows them to contribute to the enterprise of the community and to engage with others around that enterprise. In fact, this is how most learning takes place outside of school, where it is true not only of adults, but also of children: we are all engaged in the pursuit of a socially meaningful enterprise, and our learning is in the service of that engagement. Our communities of practice then become resources for organizing our learning as well as contexts in which to manifest our learning through an identity of participation. What is crucial about this kind of engagement as an educational experience is that identity and learning serve each other.

Rather than mistrusting social relationships and interests, as traditional learning institutions often do, a learning community incorporates

them as essential ingredients of learning in order to maximize the engagement of its members. Building complex social relationships around meaningful activities requires genuine practices in which taking charge of learning becomes the enterprise of a community. In terms of infrastructure, this means:

1) activities requiring mutual engagement, both among students and with other people involved

2) challenges and responsibilities that call upon the knowledgeability of students yet encourage them to explore new territories

3) enough continuity for participants to develop shared practices and a long-term commitment to their enterprise and each other.

As stated previously, it is more important for students to have experiences that allow them to take charge of their own learning than to cover a lot of material. A curriculum would then look more like an itinerary of transformative experiences of participation than a list of subject matter. Given enough resources, the practice of a learning community can become rich and complex enough to be the driving force of a complete education.

Educational imagination

It is not enough for education to provide a locus of engagement. If the purpose of education is not simply to prepare students for a specific capability, but rather to give them a sense of the possible trajectories available in various communities, then education must involve imagination in a central way. Students must be enabled to explore who they are, who they are not, who they could be. They must be able to understand where they come from and where they can go. In terms of design, it is necessary to support all three aspects of imagination introduced in Chapter 10.

* *Orientation.* Educational imagination is about locating ourselves – getting a panoramic view of the landscape and of our place in it. It is about other meanings, other places, other times. It is about directions and trajectories. In this sense, it is about identity formation as an expanding image of the world.
* *Reflection.* Educational imagination is about looking at ourselves and our situations with new eyes. It is about taking a distance and seeing the obvious anew. It is about being aware of the multiple ways

we can interpret our lives. In this sense, it is about identity as self-consciousness.

* *Exploration.* Educational imagination is also about not accepting things the way they are, about experimenting and exploring possibilities, reinventing the self, and in the process reinventing the world. It is daring to try on something really different, to open new trajectories, to seek different experiences, and to conceive of different futures. In this sense, it is about identity as a creation.

Of course, television, magazines, books, and the media in general do offer endless material for imagination. It is perhaps precisely because they furnish material for identification through imagination that they are so successful in fascinating us, and that they compete so successfully with schools for the attention of students. But when imagination is anchored in a learning community, it can become part of a lived identity and so become an active rather than passive force. For a learning community, imagination is a way to expand the definition of its enterprise.

One cannot stress enough that these aspects of an infrastructure of imagination are matters of identity, not just of information. Information for its own sake is meaningless; it must capture our identities and expand them. Again – this time in terms of imagination – it is more important for the informational content of an educational experience to be identity-transforming than to be "complete" in some abstract way. This is especially true in a world where it is clearly impossible to know all there is to know, but where identity involves choosing what to know and becoming a person for whom such knowledge is meaningful. Learning is a lifelong process that is not limited to educational settings but *is* limited by the scope of our identities. In this regard, educational designs must aim to launch this broader learning process rather than substitute for it.

Educational alignment

Through local engagement and panoramic imagination, students may gain a good understanding of their situation and still not be able to take charge of their destiny with respect to a broader context. Toward this end, they must have first-hand experience of what it takes to accomplish something on a larger scale. How does one contribute to a broad enterprise? How can local actions add up to large-scale effects? What are the processes of coordination by which various contributors

converge on a joint goal? What are the demands of participation in the world into which education is meant to lead? How does one have an effect on such a world? What are the structures of power by which alignment is legislated and enforced? How can one gain some leverage in that context? How can one enter the various economies of meaning with a chance of finding a reasonable place in them?

Educational design must engage learning communities in activities that have consequences beyond their boundaries, so that students may learn what it takes to become effective in the world. A learning community offers opportunities to explore alignment in a variety of ways.

- *Boundary processes.* A learning community must push its boundaries and interact with other communities of practice. But in order to go beyond just imagination, these contacts must take place in the course of seeking alignment for some meaningful purpose.
- *Experiences of multimembership.* A learning community must articulate participation inside with participation outside. Bringing multiple forms of membership together entails including the necessary work of reconciliation into its own practice, and thus expanding its own horizon.
- *Styles and discourses of broader constellations.* A learning community must become self-conscious about appropriating the styles and discourses of the constellations in which it expects to have effects. Science or civic education is as much about discourses of alignment as it is about lists of facts or techniques.
- *Institutional participation.* A learning community must be given opportunities to become involved in the institutional arrangements in the context of which it defines its enterprise. As I mentioned earlier, a large part of institutionalized educational design consists in an apprenticeship in institutional identity.

Problems of alignment cover a range of educational concerns, from issues of proper spelling to issues of political power. Today more than ever, issues of alignment are fundamental to education because the scope of our interdependencies expands at the same time as our societies remain fragmented. To be able to have effects on the world, students must learn to find ways of coordinating multiple perspectives. This observation is rather commonplace. What is not so widely understood is that this ability is not just a matter of information and skill. It is not an abstract technical question, nor merely learning the repertoires of multiple practices. Rather, it is a matter of identity – of strad-

dling across boundaries and finding ways of being in the world that can encompass multiple, conflicting perspectives in the course of addressing significant issues. Exercising this sort of identity is a result of participation in a learning community challenged by issues of alignment. It is one of the most critical aspects of education for the kind of world we live in.

Educational resources

I have argued that an educational design does not enable learning by attempting to substitute for the world and be the entire learning event. It cannot be a closed system that shelters a well-engineered but self-contained learning process. On the contrary, it must aim to offer dense connections to communities outside its setting.

If education is understood as fulfilling a different function than preparation for engagement in specific practices, then it may be useful to have specific settings dedicated to it. Such a specialized setting may need to be distinct from other forms of engagement, but it must not be sequestered from them. In order to combine engagement, imagination, and alignment, learning communities cannot be isolated. They must use the world around them as a learning resource and be a learning resource for the world.

There are all sorts of reasons to shelter newcomers from the intensity of actual practice, from the power struggles of full participation, and possibly from the abuses of established members. Similarly, there are all sorts of reasons to shelter old-timers from the naiveté of newcomers and spare them the time and trouble of going over the basics. Still, I argued in Chapter 6 that the generational encounter involves not the mere transmission of a cultural heritage, but the mutual negotiation of identities invested in different historical moments. When old-timers and newcomers are engaged in separate practices, they lose the benefit of their interaction.

This segregation, which is typical of the modern experience of youth, is doubly costly. The young are not given a chance to invest their fresh energy in pushing histories of practice forward, nor is their unbridled naiveté subjected to the accountability inherent in engagement in actual practice.

- On the one hand, newcomers are not directly exposed to the accountability of practice and the lived models of paradigmatic trajectories. Their educational experience is thus impoverished.

- On the other, practices do not benefit from the need for reflection introduced by the generational encounter. Communities are thus deprived of the contributions of potentially the most dynamic, albeit inexperienced, segment of their membership – the segment that has the greatest stake in their future.

In terms of identity, this segregation creates a vacuum. Generational issues of identification and negotiability become resolved in isolation. Local ownership of meaning is not exposed to broader economies. Identification finds material in relationships among newcomers; that is, newcomers are having to invent identities and meanings among themselves. In this context they can try some pretty wild things, but their attempts remain local, self-contained, and without much effect on history. Without mutual engagement and accountability across generations, new identities can be both erratically inventive and historically ineffective.

An important function of educational design is thus to maximize, rather than avoid, interactions among generations in ways that interlock their stakes in histories of practice. As I mentioned earlier, teachers, parents, and other educators constitute learning resources, not only through their pedagogical or institutional roles, but also (and perhaps primarily) through their own membership in relevant communities of practice. In other words, it is not so much by the specific content of their pedagogy as by their status as members that they take part in the generational encounter.

If the pedagogical and institutional functions of educators completely displace their ability to manifest their identities as participants in their communities of practice, they lose their most powerful teaching asset. For instance, in many schools, the separation from mature practice is exacerbated by the roles of teachers as managers of large classrooms. In such a role, teachers do not have much opportunity to act as themselves – as adults and thus as doorways into the adult world. Rather, they constantly have to act as teachers – that is, as representatives of the institution and upholders of curricular demands, with an identity defined by an institutional role. Hence, in terms of forming identities of participation, the organization of schooling tends to offer students very limited contacts with adulthood as a lived identity.

This observation prompts two strategic remarks. First, teachers need to "represent" their communities of practice in educational settings. This type of lived authenticity brings into the subject matter the concerns, sense of purpose, identification, and emotion of participation. It

is not, however, something that I have seen emphasized in our schools. Yet for students, it is the kind of access to experience they need in order to feel connected to a subject matter. This principle suggests that being an active practitioner with an authentic form of participation might be one of the most deeply essential requirements for teaching.

Second, it is desirable to increase opportunities for relationships with adults just being adults, while downplaying the institutional aspects of their role as educators. What students need in developing their own identities is contact with a variety of adults who are willing to invite them into their adulthood. By this I do not mean that adults must be role models in a dramatic fashion. The main point is not to be exemplary in any idealized sense – though some authentic ideals can be helpful – but rather to act as members and engage in the learning that membership entails, and then to open forms of mutual engagement that can become an invitation to participation.

Indeed, the mutuality of engagement is a mutuality of learning. I argued in Chapter 3 that it is because practice is a process of interactive learning to start with that it enables newcomers to insert themselves into existing communities. It is the learning of mature members and of their communities that invites the learning of newcomers. As a consequence, it is as learners that we become educators.

If learning is a matter of identity, then identity is itself an educational resource. It can be brought to bear through relations of mutuality to address a paradox of learning: if one needs an identity of participation in order to learn, yet needs to learn in order to acquire an identity of participation, then there seems to be no way to start. Addressing this most fundamental paradox is what, in the last analysis, education is about. In the life-giving power of mutuality lies the miracle of parenthood, the essence of apprenticeship, the secret to the generational encounter, the key to the creation of connections across boundaries of practice: a frail bridge across the abyss, a slight breach of the law, a small gift of undeserved trust – it is almost a theorem of love that we can open our practices and communities to others (newcomers, outsiders), invite them into our own identities of participation, let them be what they are not, and thus start what cannot be started.