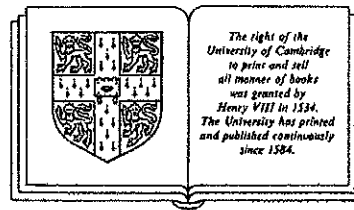


Situated Learning

Legitimate Peripheral Participation

JEAN LAVE
ETIENNE WENGER



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**Legitimate Peripheral
Participation**

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Learning viewed as situated activity has as its central defining characteristic a process that we call *legitimate peripheral participation*. By this we mean to draw attention to the point that learners inevitably participate in communities of practitioners and that the mastery of knowledge and skill requires newcomers to move toward full participation in the sociocultural practices of a community. "Legitimate peripheral participation" provides a way to speak about the relations between newcomers and old-timers, and about activities, identities, artifacts, and communities of knowledge and practice. It concerns the process by which newcomers become part of a community of practice. A person's intentions to learn are engaged and the meaning of learning is configured through the process of becoming a full participant in a sociocultural practice. This social process includes, indeed it subsumes, the learning of knowledgeable skills.

In order to explain our interest in the concept of legitimate peripheral participation, we will try to convey a sense of the perspectives that it opens and the kinds of questions that it raises. A good way to start is to outline the history of the concept as it has become increasingly central to our thinking about issues of learning. Our initial intention in writing what has gradually evolved into this book was to rescue the idea of *apprenticeship*. In 1988, notions about apprenticeship were flying around the halls of the Institute for Research on Learning, acting as a token of solidarity and as a focus for discussions on the nature of learning. We and our colleagues had begun to talk about learners as apprentices, about teachers and computers as masters, and about cognitive apprenticeship, apprenticeship learning, and even life as apprenticeship. It was evident that no one was certain what the term meant. Further-

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more, it was understood to be a synonym for *situated learning*, about which we were equally uncertain. Resort to one did not clarify the other. Apprenticeship had become yet another panacea for a broad spectrum of learning-research problems, and it was in danger of becoming meaningless.

Other considerations motivated this work as well. Our own earlier work on craft apprenticeship in West Africa, on intelligent tutoring systems, and on the cultural transparency of technology seemed relevant and at the same time insufficient for the development of an adequate theory of learning, giving us an urgent sense that we needed such a theory. Indeed, our central ideas took shape as we came to see that the most interesting features both of apprenticeship and of "glass-box" approaches to the development and understanding of technology could be characterized – and analyzed – as legitimate peripheral participation in communities of practice.

The notion that learning through apprenticeship was a matter of legitimate peripheral participation arose first in research on craft apprenticeship among Vai and Gola tailors in Liberia (Lave, in preparation). In that context it was simply an observation about the tailors' apprentices within an analysis addressing questions of how apprentices might engage in a common, structured pattern of learning experiences without being taught, examined, or reduced to mechanical copiers of everyday tailoring tasks, and of how they become, with remarkably few exceptions, skilled and respected master tailors. It was difficult, however, to separate the historically and culturally specific circumstances that made Vai and Gola apprenticeship both effective and benign as a form of education from the critique of schooling and school practices that this inevitably suggested, or from a more general theory of situated learning.

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This added to the general confusion that encouraged us to undertake this project.

Over the past two years we have attempted to clarify the confusion. Two moments in that process were especially important. To begin with, the uses of "apprenticeship" in cognitive and educational research were largely metaphorical, even though apprenticeship as an actual educational form clearly had a long and varied train of historically and culturally specific realizations. We gradually became convinced that we needed to reexamine the relationship between the "apprenticeship" of speculation and historical forms of apprenticeship. This led us to insist on the distinction between our theoretical framework for analyzing educational forms and specific historical instances of apprenticeship. This in turn led us to explore learning as "situated learning."

Second, this conception of situated learning clearly was more encompassing in intent than conventional notions of "learning *in situ*" or "learning by doing" for which it was used as a rough equivalent. But, to articulate this intuition usefully, we needed a better characterization of "situatedness" as a theoretical perspective. The attempt to clarify the concept of situated learning led to critical concerns about the theory and to further revisions that resulted in the move to our present view that learning is an integral and inseparable aspect of social practice. We have tried to capture this new view under the rubric of legitimate peripheral participation.

Discussing each shift in turn may help to clarify our reasons for coming to characterize learning as legitimate peripheral participation in communities of practice.

FROM APPRENTICESHIP TO SITUATED LEARNING

Fashioning a firm distinction between historical *forms* of apprenticeship and situated learning as a historical-cultural *theory* required that we stop trying to use empirical cases of apprenticeship as a lens through which to view all forms of learning. On these grounds we started to reconsider the forms of apprenticeship with which we were most familiar as models of effective learning in the context of a broader theoretical goal. Nevertheless, specific cases of apprenticeship were of vital interest in the process of developing and exemplifying a theory of situated learning and we thus continued to use some of these studies as resources in working out our ideas. We might equally have turned to studies of socialization; children are, after all, quintessentially legitimate peripheral participants in adult social worlds. But various forms of apprenticeship seemed to capture very well our interest in learning in situated ways – in the transformative possibilities of being and becoming complex, full cultural-historical participants in the world – and it would be difficult to think of a more apt range of social practices for this purpose.

The distinction between historical cases of apprenticeship and a theory of situated learning was strengthened as we developed a more comprehensive view of different approaches to situatedness. Existing confusion over the meaning of situated learning and, more generally, situated activity resulted from differing interpretations of the concept. On some occasions “situated” seemed to mean merely that some of people’s thoughts and actions were located in space and time. On other occasions, it seemed to mean that thought and action were social only in the narrow sense that they involved other people, or that they were immediately dependent for meaning on

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the social setting that occasioned them. These types of interpretations, akin to naive views of indexicality, usually took some activities to be situated and some not.

In the concept of situated activity we were developing, however, the situatedness of activity appeared to be anything but a simple empirical attribute of everyday activity or a corrective to conventional pessimism about informal, experience-based learning. Instead, it took on the proportions of a general theoretical perspective, the basis of claims about the relational character of knowledge and learning, about the negotiated character of meaning, and about the concerned (engaged, dilemma-driven) nature of learning activity for the people involved. That perspective meant that there is no activity that is not situated. It implied emphasis on comprehensive understanding involving the whole person rather than "receiving" a body of factual knowledge about the world; on activity in and with the world; and on the view that agent, activity, and the world mutually constitute each other.

We have discovered that this last conception of situated activity and situated learning, which has gradually emerged in our understanding, frequently generates resistance, for it seems to carry with it connotations of parochialism, particularity, and the limitations of a given time and task. This misinterpretation of situated learning requires comment. (Our own objections to theorizing in terms of situated learning are somewhat different. These will become clearer shortly.) The first point to consider is that even so-called general knowledge only has power in specific circumstances. Generality is often associated with abstract representations, with decontextualization. But abstract representations are meaningless unless they can be made specific to the situation at hand. Moreover, the formation or acquisition of an abstract principle is itself a specific event in

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specific circumstances. Knowing a general rule by itself in no way assures that any generality it may carry is enabled in the specific circumstances in which it is relevant. In this sense, any "power of abstraction" is thoroughly situated, in the lives of persons and in the culture that makes it possible. On the other hand, the world carries its own structure so that specificity always implies generality (and in this sense generality is not to be assimilated to abstractness): That is why stories can be so powerful in conveying ideas, often more so than an articulation of the idea itself. What is called general knowledge is not privileged with respect to other "kinds" of knowledge. It too can be gained only in specific circumstances. And it too must be brought into play in specific circumstances. The generality of any form of knowledge always lies in the power to renegotiate the meaning of the past and future in constructing the meaning of present circumstances.

FROM SITUATED LEARNING TO LEGITIMATE PERIPHERAL PARTICIPATION

This brings us to the second shift in perspective that led us to explore learning as legitimate peripheral participation. The notion of situated learning now appears to be a transitory concept, a bridge, between a view according to which cognitive processes (and thus learning) are primary and a view according to which social practice is the primary, generative phenomenon, and learning is one of its characteristics. There is a significant contrast between a theory of learning in which practice (in a narrow, replicative sense) is subsumed within processes of learning and one in which learning is taken to be an integral

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aspect of practice (in a historical, generative sense). In our view, learning is not merely situated in practice – as if it were some independently reifiable process that just happened to be located somewhere; learning is an integral part of generative social practice in the lived-in world. The problem – and the central preoccupation of this monograph – is to translate this into a specific analytic approach to learning. Legitimate peripheral participation is proposed as a descriptor of engagement in social practice that entails learning as an integral constituent.

Before proceeding with a discussion of the analytic questions involved in a social practice theory of learning, we need to discuss our choices of terms and the issues that they reflect, in order to clarify our conception of legitimate peripheral participation. Its composite character, and the fact that it is not difficult to propose a contrary for each of its components, may be misleading. It seems all too natural to decompose it into a set of three contrasting pairs: legitimate versus illegitimate, peripheral versus central, participation versus nonparticipation. But we intend for the concept to be taken as a whole. Each of its aspects is indispensable in defining the others and cannot be considered in isolation. Its constituents contribute inseparable aspects whose combinations create a landscape – shapes, degrees, textures – of community membership.

Thus, in the terms proposed here there may very well be no such thing as an “illegitimate peripheral participant.” The form that the legitimacy of participation takes is a defining characteristic of ways of belonging, and is therefore not only a crucial condition for learning, but a constitutive element of its content. Similarly, with regard to “peripherality” there may well be no such simple thing as “central participation” in a community of practice. Peripherality suggests that there are

multiple, varied, more- or less-engaged and -inclusive ways of being located in the fields of participation defined by a community. Peripheral participation is about being located in the social world. *Changing* locations and perspectives are part of actors' learning trajectories, developing identities, and forms of membership.

Furthermore, legitimate peripherality is a complex notion, implicated in social structures involving relations of power. As a place in which one moves toward more-intensive participation, peripherality is an empowering position. As a place in which one is kept from participating more fully – often legitimately, from the broader perspective of society at large – it is a disempowering position. Beyond that, legitimate peripherality can be a position at the articulation of related communities. In this sense, it can itself be a source of power or powerlessness, in affording or preventing articulation and interchange among communities of practice. The ambiguous potentialities of legitimate peripherality reflect the concept's pivotal role in providing access to a nexus of relations otherwise not perceived as connected.

Given the complex, differentiated nature of communities, it seems important not to reduce the end point of centripetal participation in a community of practice to a uniform or univocal "center," or to a linear notion of skill acquisition. There is no place in a community of practice designated "the periphery," and, most emphatically, it has no single core or center. *Central participation* would imply that there is a center (physical, political, or metaphorical) to a community with respect to an individual's "place" in it. *Complete participation* would suggest a closed domain of knowledge or collective practice for which there might be measurable degrees of "acquisition" by newcomers. We have chosen to call that to which peripheral

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participation leads, *full participation*. Full participation is intended to do justice to the diversity of relations involved in varying forms of community membership.

Full participation, however, stands in contrast to only one aspect of the concept of peripherality as we see it: It places the emphasis on what partial participation is not, or not yet. In our usage, *peripherality* is also a *positive* term, whose most salient conceptual antonyms are *unrelatedness* or *irrelevance* to ongoing activity. The partial participation of newcomers is by no means "disconnected" from the practice of interest. Furthermore, it is also a dynamic concept. In this sense, peripherality, when it is enabled, suggests an opening, a way of gaining access to sources for understanding through growing involvement. The ambiguity inherent in peripheral participation must then be connected to issues of legitimacy, of the social organization of and control over resources, if it is to gain its full analytical potential.

AN ANALYTIC PERSPECTIVE ON LEARNING

With the first shift in the development of this project we have tried to establish that our historical-cultural theory of learning should not be merely an abstracted generalization of the concrete cases of apprenticeship – or any other educational form. Further, coming to see that a theory of situated activity challenges the very meaning of abstraction and/or generalization has led us to reject conventional readings of the generalizability and/or abstraction of "knowledge." Arguing in favor of a shift away from a theory of situated activity in which learning is defined as one kind of activity, and toward a theory of social

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practice in which learning is viewed as an aspect of all activity, has led us to consider how we are to think about our own practice. And this has revealed a dilemma: How can we purport to be working out a *theoretical conception* of learning without, in fact, engaging in just the project of abstraction rejected above?

There are several classical dualist oppositions that in many contexts are treated as synonymous, or nearly so: abstract-concrete; general-particular; theory about the world, and the world so described. Theory is assumed to be general and abstract, the world, concrete and particular. But in the Marxist historical tradition that underpins social practice theory these terms take on different relations with each other and different meanings. They do so as part of a general method of social analysis. This method does not deny that there is a concrete world, which is ordinarily perceived as some collection of particularities, just as it is possible to invent simple, thin, abstract theoretical propositions about it. But these two possibilities are not considered as the two poles of interest. Instead, both of them offer points of departure for starting to explore and produce an understanding of multiply determined, diversely unified – that is, complexly concrete – historical processes, of which particularities (including initial theories) are the result (Marx 1857; Hall 1973; Ilyenkov 1977). The theorist is trying to recapture those relations in an analytic way that turns the apparently “natural” categories and forms of social life into challenges to our understanding of how they are (historically and culturally) produced and reproduced. The goal, in Marx’s memorable phrase, is to “ascend (from both the particular and the abstract) to the concrete.”

It may now be clearer why it is not appropriate to treat legitimate peripheral participation as a mere distillation of ap-

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prenticeship, an abstracting process of generalizing from examples of apprenticeship. (Indeed, turned onto apprenticeship, the concept should provide the same analytical leverage as it would for any other educational form.) Our theorizing about legitimate peripheral participation thus is not intended as abstraction, but as an attempt to explore its concrete relations. To think about a concept like legitimate peripheral participation in this way is to argue that its theoretical significance derives from the richness of its interconnections: in historical terms, through time and across cultures. It may convey better what we mean by a historically, culturally concrete "concept" to describe legitimate peripheral participation as an "analytical perspective." We use these two terms interchangeably hereafter.

WITH LEGITIMATE PERIPHERAL PARTICIPATION

We do not talk here about schools in any substantial way, nor explore what our work has to say about schooling. Steering clear of the problem of school learning for the present was a conscious decision, which was not always easy to adhere to as the issue kept creeping into our discussions. But, although we mention schooling at various points, we have refrained from any systematic treatment of the subject. It is worth outlining our reasons for this restraint, in part because this may help clarify further the theoretical status of the concept of legitimate peripheral participation.

First, as we began to focus on legitimate peripheral participation, we wanted above all to take a fresh look at learning. Issues of learning and schooling seemed to have become too

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deeply interrelated in our culture in general, both for purposes of our own exploration and the exposition of our ideas. More importantly, the organization of schooling as an educational form is predicated on claims that knowledge can be decontextualized, and yet schools themselves as social institutions and as places of learning constitute very specific contexts. Thus, analysis of school learning as situated requires a multilayered view of how knowing and learning are part of social practice – a major project in its own right. Last, but not least, pervasive claims concerning the sources of the effectiveness of schooling (in teaching, in the specialization of schooling in changing persons, in the special modes of inculcation for which schools are known) stand in contradiction with the situated perspective we have adopted. All this has meant that our discussions of schooling were often contrastive, even oppositional. But we did not want to define our thinking and build our theory primarily by contrast to the claims of any educational form, including schooling. We wanted to develop a view of learning that would stand on its own, reserving the analysis of schooling and other specific educational forms for the future.

We should emphasize, therefore, that legitimate peripheral participation is not itself an educational form, much less a pedagogical strategy or a teaching technique. It is an analytical viewpoint on learning, a way of understanding learning. We hope to make clear as we proceed that learning through legitimate peripheral participation takes place no matter which educational form provides a context for learning, or whether there is any intentional educational form at all. Indeed, this viewpoint makes a fundamental distinction between learning and intentional instruction. Such decoupling does not deny that learning can take place where there is teaching, but does not

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take intentional instruction to be in itself the source or cause of learning, and thus does not blunt the claim that what gets learned is problematic with respect to what is taught. Undoubtedly, the analytical perspective of legitimate peripheral participation could – we hope that it will – inform educational endeavors by shedding a new light on learning processes, and by drawing attention to key aspects of learning experience that may be overlooked. But this is very different from attributing a prescriptive value to the concept of legitimate peripheral participation and from proposing ways of “implementing” or “operationalizing” it for educational purposes.

Even though we decided to set aside issues of schooling in this initial stage of our work, we are persuaded that rethinking schooling from the perspective afforded by legitimate peripheral participation will turn out to be a fruitful exercise. Such an analysis would raise questions about the place of schooling in the community at large in terms of possibilities for developing identities of mastery. These include questions of the relation of school practices to those of the communities in which the knowledge that schools are meant to “impart” is located, as well as issues concerning relations between the world of schooling and the world of adults more generally. Such a study would also raise questions about the social organization of schools themselves into communities of practice, both official and interstitial, with varied forms of membership. We would predict that such an investigation would afford a better context for determining what students learn and what they do not, and what it comes to mean for them, than would a study of the curriculum or of instructional practices.

Thinking about schooling in terms of legitimate peripheral participation is only one of several directions that seem promising for pursuing the analysis of contemporary and other his-

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torical forms of social practice in terms of legitimate peripheral participation in communities of practice. There are central issues that are only touched upon in this monograph, and that need to be given more attention. The concept of "community of practice" is left largely as an intuitive notion, which serves a purpose here but which requires a more rigorous treatment. In particular, unequal relations of power must be included more systematically in our analysis. Hegemony over resources for learning and alienation from full participation are inherent in the shaping of the legitimacy and peripherality of participation in its historical realizations. It would be useful to understand better how these relations generate characteristically interstitial communities of practice and truncate possibilities for identities of mastery.

THE ORGANIZATION OF THIS MONOGRAPH

In this brief history we have tried to convey how and why the core concept of legitimate peripheral participation has taken on theoretical interest for us. In the next chapter we place this history in a broader theoretical context and investigate assumptions about learning; we contrast our own views to conventional views concerning internalization, the construction of identity, and the production of communities of practice. In Chapter 3, we present excerpts from five studies of apprenticeship, analyzing them as instances of learning through legitimate peripheral participation. These studies raise a series of issues: the relations between learning and pedagogy, the place of knowledge in practice, the importance of access to the learning potential of given settings, the uses of language in learning-in-

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practice, and the way in which knowledge takes on value for the learner in the fashioning of identities of full participation. Our discussion of these issues provokes an examination of the fundamental contradictions embodied in relations of legitimate peripheral participation, and of how such contradictions are involved in generating change (Chapter 4). In conclusion, we emphasize the significance of shifting the analytic focus from the individual as learner to learning as participation in the social world, and from the concept of cognitive process to the more-encompassing view of social practice.

**Practice, Person,
Social World**

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All theories of learning are based on fundamental assumptions about the person, the world, and their relations, and we have argued that this monograph formulates a theory of learning as a dimension of social practice. Indeed, the concept of legitimate peripheral participation provides a framework for bringing together theories of situated activity and theories about the production and reproduction of the social order. These have usually been treated separately, and within distinct theoretical traditions. But there is common ground for exploring their integral, constitutive relations, their entailments, and effects in a framework of social practice theory, in which the production, transformation, and change in the identities of persons, knowledgeable skill in practice, and communities of practice are realized in the lived-in world of engagement in everyday activity.

INTERNALIZATION OF THE CULTURAL GIVEN

Conventional explanations view learning as a process by which a learner internalizes knowledge, whether "discovered," "transmitted" from others, or "experienced in interaction" with others. This focus on internalization does not just leave the nature of the learner, of the world, and of their relations unexplored; it can only reflect far-reaching assumptions concerning these issues. It establishes a sharp dichotomy between inside and outside, suggests that knowledge is largely cerebral, and takes the individual as the nonproblematic unit of analysis. Furthermore, learning as internalization is too easily construed as an unproblematic process of absorbing the given, as a matter of transmission and assimilation.

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Internalization is even central to some work on learning explicitly concerned with its social character, for instance in the work of Vygotsky. We are aware that Vygotsky's concept of the zone of proximal development has received vastly differing interpretations, under which the concept of internalization plays different roles. These interpretations can be roughly classified into three categories. First, the zone of proximal development is often characterized as the distance between problem-solving abilities exhibited by a learner working alone and that learner's problem-solving abilities when assisted by or collaborating with more-experienced people. This "scaffolding" interpretation has inspired pedagogical approaches that explicitly provide support for the initial performance of tasks to be later performed without assistance (Greenfield 1984; Wood, Bruner, and Ross 1976; for critiques of this position, see Engeström 1987, and Griffin and Cole 1984). Second, a "cultural" interpretation construes the zone of proximal development as the distance between the cultural knowledge provided by the sociohistorical context – usually made accessible through instruction – and the everyday experience of individuals (Davydov and Markova 1983). Hedegaard (1988) calls this the distance between understood knowledge, as provided by instruction, and active knowledge, as owned by individuals. This interpretation is based on Vygotsky's distinction between scientific and everyday concepts, and on his argument that a mature concept is achieved when the scientific and everyday versions have merged. In these two classes of interpretation of the concept of the zone of proximal development, the social character of learning mostly consists in a small "aura" of socialness that provides input for the process of internalization viewed as individualistic acquisition of the cultural given. There is no account of the place of learning in the broader

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context of the structure of the social world (Fajans and Turner in preparation).

Contemporary developments in the traditions of Soviet psychology, in which Vygotsky's work figures prominently, include activity theory (Bakhurst 1988; Engeström 1987; Wertsch 1981, 1985) and critical psychology (Holzkamp 1983, 1987; Dreier in press; see also Garner 1986). In the context of these recent developments, a third type of interpretation of the zone of proximal development takes a "collectivist," or "societal" perspective. Engeström defines the zone of proximal development as the "distance between the everyday actions of individuals and the historically new form of the societal activity that can be collectively generated as a solution to the double bind potentially embedded in . . . everyday actions" (Engeström 1987: 174). Under such societal interpretations of the concept of the zone of proximal development researchers tend to concentrate on processes of social transformation. They share our interest in extending the study of learning beyond the context of pedagogical structuring, including the structure of the social world in the analysis, and taking into account in a central way the conflictual nature of social practice. We place more emphasis on connecting issues of sociocultural transformation with the changing relations between newcomers and old-timers in the context of a changing shared practice.

PARTICIPATION IN SOCIAL PRACTICE

In contrast with learning as internalization, learning as increasing participation in communities of practice concerns the whole person acting in the world. Conceiving of learning in terms of

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participation focuses attention on ways in which it is an evolving, continuously renewed set of relations; this is, of course, consistent with a relational view, of persons, their actions, and the world, typical of a theory of social practice.

Theorizing about social practice, praxis, activity, and the development of human knowing through participation in an ongoing social world is part of a long Marxist tradition in the social sciences. It influences us most immediately through contemporary anthropological and sociological theorizing about practice. The critique of structural and phenomenological theory early in Bourdieu's *Outline of a Theory of Practice*, with its vision of conductorless orchestras, and regulation without rules, embodied practices and cultural dispositions concerted in class habitus, suggest the possibility of a (crucially important) break with the dualisms that have kept persons reduced to their minds, mental processes to instrumental rationalism, and learning to the acquisition of knowledge (the discourse of dualism effectively segregates even these reductions from the everyday world of engaged participation). Insistence on the historical nature of motivation, desire, and the very relations by which social and culturally mediated experience is available to persons-in-practice is one key to the goals to be met in developing a theory of practice. Theorizing in terms of practice, or praxis, also requires a broad view of human agency (e.g., Giddens 1979), emphasizing the integration in practice of agent, world, and activity (Bourdieu 1977; Ortner 1984; Bauman 1973).

Briefly, a theory of social practice emphasizes the relational interdependency of agent and world, activity, meaning, cognition, learning, and knowing. It emphasizes the inherently socially negotiated character of meaning and the interested, concerned character of the thought and action of persons-in-

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activity. This view also claims that learning, thinking, and knowing are relations among people in activity in, with, and arising from the socially and culturally structured world. This world is socially constituted; objective forms and systems of activity, on the one hand, and agents' subjective and intersubjective understandings of them, on the other, mutually constitute both the world and its experienced forms. Knowledge of the socially constituted world is socially mediated and open ended. Its meaning to given actors, its furnishings, and the relations of humans with/in it, are produced, reproduced, and changed in the course of activity (which includes speech and thought, but cannot be reduced to one or the other). In a theory of practice, cognition and communication in, and with, the social world are situated in the historical development of ongoing activity. It is, thus, a critical theory; the social scientist's practice must be analyzed in the same historical, situated terms as any other practice under investigation. One way to think of learning is as the historical production, transformation, and change of persons. Or to put it the other way around, in a thoroughly historical theory of social practice, the historicizing of the production of persons should lead to a focus on processes of learning.

Let us return to the question of internalization from such a relational perspective. First, the historicizing of processes of learning gives the lie to ahistorical views of "internalization" as a universal process. Further, given a relational understanding of person, world, and activity, participation, at the core of our theory of learning, can be neither fully internalized as knowledge structures nor fully externalized as instrumental artifacts or overarching activity structures. Participation is always based on situated negotiation and renegotiation of meaning in the world. This implies that understanding and experience

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are in constant interaction -- indeed, are mutually constitutive. The notion of participation thus dissolves dichotomies between cerebral and embodied activity, between contemplation and involvement, between abstraction and experience: persons, actions, and the world are implicated in all thought, speech, knowing, and learning.

THE PERSON AND IDENTITY IN LEARNING

Our claim, that focusing on the structure of social practice and on participation therein implies an explicit focus on the person, may appear paradoxical at first. The individualistic aspects of the cognitive focus characteristic of most theories of learning thus only seem to concentrate on the person. Painting a picture of the person as a primarily "cognitive" entity tends to promote a nonpersonal view of knowledge, skills, tasks, activities, and learning. As a consequence, both theoretical analyses and instructional prescriptions tend to be driven by reference to reified "knowledge domains," and by constraints imposed by the general requirements of universal learning mechanisms understood in terms of acquisition and assimilation. In contrast, to insist on starting with social practice, on taking participation to be the crucial process, and on including the social world at the core of the analysis only seems to eclipse the person. In reality, however, participation in social practice -- subjective as well as objective -- suggests a very explicit focus on the person, but as person-in-the-world, as member of a sociocultural community. This focus in turn promotes a view of knowing as activity by specific people in specific circumstances.

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As an aspect of social practice, learning involves the whole person; it implies not only a relation to specific activities, but a relation to social communities – it implies becoming a full participant, a member, a kind of person. In this view, learning only partly – and often incidentally – implies becoming able to be involved in new activities, to perform new tasks and functions, to master new understandings. Activities, tasks, functions, and understandings do not exist in isolation; they are part of broader systems of relations in which they have meaning. These systems of relations arise out of and are reproduced and developed within social communities, which are in part systems of relations among persons. The person is defined by as well as defines these relations. Learning thus implies becoming a different person with respect to the possibilities enabled by these systems of relations. To ignore this aspect of learning is to overlook the fact that learning involves the construction of identities.

Viewing learning as legitimate peripheral participation means that learning is not merely a condition for membership, but is itself an evolving form of membership. We conceive of identities as long-term, living relations between persons and their place and participation in communities of practice. Thus identity, knowing, and social membership entail one another.

There may seem to be a contradiction between efforts to “decenter” the definition of the person and efforts to arrive at a rich notion of agency in terms of “whole persons.” We think that the two tendencies are not only compatible but that they imply one another, if one adopts as we have a relational view of the person and of learning: It is by the theoretical process of decentering in relational terms that one can construct a robust notion of “whole person” which does justice to the multiple relations through which persons define themselves in

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practice. Giddens (1979) argues for a view of decentering that avoids the pitfalls of "structural determination" by considering intentionality as an ongoing flow of reflective moments of monitoring in the context of engagement in a tacit practice. We argue further that this flow of reflective moments is organized around trajectories of participation. This implies that changing membership in communities of practice, like participation, can be neither fully internalized nor fully externalized.

THE SOCIAL WORLD

If participation in social practice is the fundamental form of learning, we require a more fully worked-out view of the social world. Typically, theories, when they are concerned with the situated nature of learning at all, address its sociocultural character by considering only its immediate context. For instance, the activity of children learning is often presented as located in instructional environments and as occurring in the context of pedagogical intentions whose context goes unanalyzed. But there are several difficulties here, some of which will be discussed later when we address the traditional connection of learning to instruction.

Of concern here is an absence of theorizing about the social world as it is implicated in processes of learning. We think it is important to consider how shared cultural systems of meaning and political-economic structuring are interrelated, in general and as they help to coconstitute learning in communities of practice. "Locating" learning in classroom interaction is not an adequate substitute for a theory about what schooling as an activity system has to do with learning. Nor is a theory

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of the sociohistorical structuring of schooling (or simple extrapolations from it) adequate to account for other kinds of communities and the forms of legitimate peripheral participation therein. Another difficulty is that the classroom, or the school, or schooling (the context of learning activity cannot be unambiguously identified with one of these while excluding the other two) does not exist alone, but conventional theories of learning do not offer a means for grasping their interrelations. In effect, they are more concerned with furnishing the immediate social environment of the target action/interaction than with theorizing about the broader forces shaping and being shaped by those more immediate relations.

To furnish a more adequate account of the social world of learning in practice, we need to specify the analytic units and questions that would guide such a project. Legitimate peripheral participation refers both to the development of knowledgeable skilled identities in practice and to the reproduction and transformation of communities of practice. It concerns the latter insofar as communities of practice consist of and depend on a membership, including its characteristic biographies/trajectories, relationships, and practices.

Legitimate peripheral participation is intended as a conceptual bridge — as a claim about the common processes inherent in the production of changing persons and changing communities of practice. This pivotal emphasis, via legitimate peripheral participation, on relations between the production of knowledgeable identities and the production of communities of practice, makes it possible to think of sustained learning as embodying, albeit in transformed ways, the structural characteristics of communities of practice. This in turn raises questions about the sociocultural organization of space into places of activity and the circulation of knowledgeable skill; about

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the structure of access of learners to ongoing activity and the transparency of technology, social relations, and forms of activity; about the segmentation, distribution, and coordination of participation and the legitimacy of partial, increasing, changing participation within a community; about its characteristic conflicts, interests, common meanings, and intersecting interpretations and the motivation of all participants vis à vis their changing participation and identities – issues, in short, about the structure of communities of practice and their production and reproduction.

In any given concrete community of practice the process of community reproduction – a historically constructed, ongoing, conflicting, synergistic structuring of activity and relations among practitioners – must be deciphered in order to understand specific forms of legitimate peripheral participation through time. This requires a broader conception of individual and collective biographies than the single segment encompassed in studies of “learners.” Thus we have begun to analyze the changing forms of participation and identity of persons who engage in sustained participation in a community of practice: from entrance as a newcomer, through becoming an old-timer with respect to new newcomers, to a point when those newcomers themselves become old-timers. Rather than a teacher/learner dyad, this points to a richly diverse field of essential actors and, with it, other forms of relationships of participation.

For example, in situations where learning-in-practice takes the form of apprenticeship, succeeding generations of participants give rise to what in its simplest form is a triadic set of relations: The community of practice encompasses apprentices, young masters with apprentices, and masters some of whose apprentices have themselves become masters. But there

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are other inflection points as well, where journeyfolk, not yet masters, are *relative* old-timers with respect to newcomers. The diversified field of relations among old-timers and newcomers within and across the various cycles, and the importance of near-peers in the circulation of knowledgeable skill, both recommend against assimilating relations of learning to the dyadic form characteristic of conventional learning studies.

Among the insights that can be gained from a social perspective on learning is the problematic character of processes of learning and cycles of social reproduction, as well as the relations between the two. These cycles emerge in the contradictions and struggles inherent in social practice and the formation of identities. There is a fundamental contradiction in the meaning to newcomers and old-timers of increasing participation by the former; for the centripetal development of full participants, and with it the successful production of a community of practice, also implies the *replacement* of old-timers. This contradiction is inherent in learning viewed as legitimate peripheral participation, albeit in various forms, since competitive relations, in the organization of production or in the formation of identities, clearly intensify these tensions.

One implication of the inherently problematic character of the social reproduction of communities of practice is that the sustained participation of newcomers, becoming old-timers, must involve conflict between the forces that support processes of learning and those that work against them. Another related implication is that learning is never simply a process of transfer or assimilation: Learning, transformation, and change are always implicated in one another, and the status quo needs as much explanation as change. Indeed, we must not forget that communities of practice are engaged in the generative process

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of producing their own future. Because of the contradictory nature of collective social practice and because learning processes are part of the working out of these contradictions in practice, social reproduction implies the renewed construction of resolutions to underlying conflicts. In this regard, it is important to note that reproduction cycles are productive as well. They leave a historical trace of artifacts – physical, linguistic, and symbolic – and of social structures, which constitute and reconstitute the practice over time.

The following chapter begins the exploration of legitimate peripheral participation with a description of apprenticeship in five communities of practice and their location in relation to other structuring forms and forces. These studies raise – at one and the same time – questions about persons acting and the social world in relation to which they act. The questions focus on relations between forms of production and the reproduction of communities of practice, on the one hand, and the production of persons, knowledgeable skill, and identities of mastery, on the other.

**Midwives, Tailors,
Quartermasters, Butchers,
Nondrinking Alcoholics**

Midwives, Tailors, Quartermasters, Butchers, Alcoholics

Actual cases of apprenticeship provide historically and culturally specific examples which seem especially helpful in exploring the implications of the concept of legitimate peripheral participation. As we have insisted, however, the concept should not be construed as a distillation of apprenticeship. Ethnographic studies of apprenticeship emphasize the indivisible character of learning and work practices. This, in turn, helps to make obvious the social nature of learning and knowing. As these studies partially illustrate, any complex system of work and learning has roots in and interdependencies across its history, technology, developing work activity, careers, and the relations between newcomers and old-timers and among co-workers and practitioners.

We have already outlined some reasons for turning away from schooling in our search for exemplary material, though schooling provides the empirical basis for much cognitive research on learning and also for much work based on the notion of the zone of proximal development. Such research is conceptually tied in various ways to school instruction and to the pedagogical intentions of teachers and other caregivers. In this context, schooling is usually assumed to be a more effective and advanced institution for educational transmission than (supposedly) previous forms such as apprenticeship. At the very least, schooling is given a privileged role in intellectual development. Because the theory and the institution have common historical roots (Lave 1988), these school-forged theories are inescapably specialized: They are unlikely to afford us the historical-cultural breadth to which we aspire. It seems useful, given these concerns, to investigate learning-in-practice in situations that do not draw us in unreflective ways into the school milieu, and to look for "educational" occasions whose

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structure is not obscured quite so profoundly as those founded on didactic structuring.

THE CASE OF APPRENTICESHIP

For present purposes, we have gathered together examples of apprenticeship from different cultural and historical traditions. This process clearly requires us to assume the validity of applying such a rubric across widely disparate times and places. It is not our intention to carry out here the searching examination that this assumption requires, though we would be glad to see our use of it get such a discussion under way. Meanwhile, since we found it useful to investigate the common, readily identifiable features of apprenticeship in craft or "craftlike" forms of production and to push toward the commonsense boundaries of the concept with our choice of examples, a brief foray into the controversies surrounding the concept of apprenticeship is in order.

The historical significance of apprenticeship as a form for producing knowledgeably skilled persons has been overlooked, we believe, for it does not conform to either functionalist or Marxist views of educational "progress." In both traditions apprenticeship has been treated as a historically significant object more often than most educational phenomena – but only to emphasize its anachronistic irrelevance. It connotes both outmoded production and obsolete education. When its history is the pretext for dismissing an issue as an object of study, there is good reason to reexamine its existing historical and cultural diversity.

We take issue with a narrow reading of apprenticeship as if

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it were always and everywhere organized in the same ways as in feudal Europe. Engeström, for instance, associates apprenticeship with craft production, emphasizing the individual or small-group nature of production, the use of simple tools and tacit knowledge, a division of labor based on individual adaptation, and the prevalence of traditional protective codes (1987: 284). But this does not fit the descriptions of apprenticeship presented here. In fact, we emphasize the diversity of historical forms, cultural traditions, and modes of production in which apprenticeship is found (in contrast with research that stresses the uniform effects of schooling regardless of its location).

Forms of apprenticeship have been described for, among other historical traditions, ancient China; Europe, feudal and otherwise; and much of the contemporary world including West Africa and the United States (e.g., Goody 1982; Coy 1989; Cooper 1980; Geer 1972; Jordan 1989; Medick 1976). In the United States today much learning occurs in the form of some sort of apprenticeship, especially wherever high levels of knowledge and skill are in demand (e.g., medicine, law, the academy, professional sports, and the arts). The examples presented below come from different cultural traditions that have emerged in different periods in their separate and related histories in different parts of the world. All are contemporary and each reflects the complex articulation of modes of production in which it is embedded. Our intention is to show how learning or failure to learn in each of our examples of apprenticeship may be accounted for by underlying relations of legitimate peripheral participation.

In a useful caution to recent enthusiasm about the efficacy of apprenticeship learning, Grosshans (1989) points out that in Western Europe and indeed in the United States (where its renewal in the 1920s and 1930s served as a convenient means

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of exploiting workers), apprenticeship has a long reputation as a traditional form of control over the most valuable, least powerful workers. In contemporary West Africa, however, for complex reasons, among them the poverty, large numbers, and unorganized state of craft masters, there appears to be a relatively benign, relatively egalitarian, and nonexploitive character to apprenticeship. There is no point, then, either in damning apprenticeship absolutely, on the basis of its sorry reputation in Western Europe, or in glorifying it unreflectively. Although apprenticeship has no determined balance of relations of power as an abstract concept, it does have such relations in every concrete case. Any given attempt to analyze a form of learning through legitimate peripheral participation must involve analysis of the political and social organization of that form, its historical development, and the effects of both of these on sustained possibilities for learning.

The need for such analysis motivates our focus on communities of practice and our insistence that learners must be legitimate peripheral participants in ongoing practice in order for learning identities to be engaged and develop into full participation. Conditions that place newcomers in deeply adversarial relations with masters, bosses, or managers; in exhausting overinvolvement in work; or in involuntary servitude rather than participation distort, partially or completely, the prospects for learning in practice. Our viewpoint suggests that communities of practice may well develop interstitially and informally in coercive workplaces. What will be learned then will be the sociocultural practices of whatever informal community takes place in response to coercion (Orr in press). These practices shape and are shaped indirectly through resistance to the prescriptions of the ostensibly primary organizational form.

FIVE STUDIES OF APPRENTICESHIP

We present excerpts from five accounts of apprenticeship: among Yucatec Mayan midwives in Mexico (Jordan 1989), among Vai and Gola tailors in Liberia (Lave in preparation), in the work-learning settings of U.S. navy quartermasters (Hutchins in press), among butchers in U.S. supermarkets (Marshall 1972), and among "nondrinking alcoholics" in *Alcoholics Anonymous* (Cain n.d.). Even though this last case is not usually described as a form of apprenticeship, the learning this study describes is so remarkably similar to the first four in its basic character that it serves to highlight common features of the others.

These studies illustrate the varied character of concrete realizations of apprenticeship. But it is noteworthy that all of them diverge in similar ways from popular stereotypes about apprenticeship learning. It is typically assumed, for example, that apprenticeship has had an exclusive existence in association with feudal craft production; that master-apprentice relations are diagnostic of apprenticeship; and that learning in apprenticeship offers opportunities for nothing more complex than reproducing task performances in routinized ways. The cases also call into question assumptions that learning through apprenticeship shows some typical degree of informal organization.

The first three cases, as well as the last, are quite effective forms of learning; the fourth – butchers' apprenticeship in contemporary supermarkets – often doesn't work. The technologies employed, the forms of recruitment, the relations between masters and apprentices, and the organization of learning activity differ. The Yucatec midwives provide healing and

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ritual services using herbal remedies, their knowledge of techniques of birthing (including a manual cephalic version to prevent breech births), massage, and ritual procedures. The tailors are engaged in craft production for the market, using simple technology (e.g., scissors, measuring tape, thread and needle, and treadle sewing machines); masters work individually, assisted only by their apprentices. The quartermasters utilize high technology in "knowledge production" involving telescopic sighting devices called *alidades*, radio telephones, maps and nautical charts, a logbook, plotting devices, and collaborative labor. The butchers perform a commoditized service (meat cutting) using powered cutting tools and plastic-wrapping machines. And the members of A. A. band together to cope with what they perceive to be an incurable disease.

Apprentice Yucatec midwives (all women) are almost always the daughters of experienced midwives – specialized knowledge and practice is passed down within families. In the case of the tailors (all men), the apprentice and his family negotiate with a master tailor to take a newcomer into his house and family and make sure he learns the craft. The master is rarely a close relative of the apprentice. Quartermasters leave home to join the Navy, and become part of that total institution for a relatively short period of time (two or three years). They have "instructors" and "officers" and work with other "enlisted persons." Butchers' apprentices join a union and are placed in trade schools; they receive on-the-job training in supermarkets, where they are supposed to learn meat cutting from the master butchers and journeymen who work there. A. A. members join the organization, attend frequent meetings, and gradually adopt a view of themselves, through their membership in A. A., which becomes an integral part of their life. The

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butchers and in some respects the quartermasters are wage laborers; the midwives and tailors' apprentices, and of course A. A. members, are not.

There is variation in the forms of apprenticeship and the degree of integration of apprenticeship into daily life, as well as in the forms of production with which apprenticeship is associated. For instance, apprenticeship is not always, or perhaps even often, "informal." For midwives in Yucatan, apprenticeship is integrated into daily life and it is only recognized after the fact that they have served an apprenticeship. They describe the process as one in which they receive their calling and learn everything they know in dreams, though they are middle-aged adepts when this happens (Jordan 1989: 933). On the other hand, Vai masters and apprentices enter into a formal agreement before apprenticeship begins, there is some explicit structure to the learning curriculum, apprenticeship *is* their daily life, and at the close of the apprenticeship the new master must receive the official blessing of his master before he can begin a successful business independently. Quartermasters enter training programs and receive certificates, as do butchers. The apprenticeship of nondrinking alcoholics is sanctified by an explicit commitment to the organization and passage through well-defined "steps" of membership.

THE APPRENTICESHIP OF YUCATEC MIDWIVES

Jordan (1989) describes the process by which Yucatec midwives move, over a period of many years, from peripheral to full participation in midwifery. This work poses a puzzle con-

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cerning the general role of masters in the lives of apprentices. Teaching does not seem to be central either to the identities of master midwives or to learning.

Apprenticeship happens as a way of, and in the course of, daily life. It may not be recognized as a teaching effort at all. A Maya girl who eventually becomes a midwife most likely has a mother or grandmother who is a midwife, since midwifery is handed down in family lines. . . . Girls in such families, without being identified as apprentice midwives, absorb the essence of midwifery practice as well as specific knowledge about many procedures, simply in the process of growing up. They know what the life of a midwife is like (for example, that she needs to go out at all hours of the day or night), what kinds of stories the women and men who come to consult her tell, what kinds of herbs and other remedies need to be collected, and the like. As young children they might be sitting quietly in a corner as their mother administers a prenatal massage; they would hear stories of difficult cases, of miraculous outcomes, and the like. As they grow older, they may be passing messages, running errands, getting needed supplies. A young girl might be present as her mother stops for a postpartum visit after the daily shopping trip to the market.

Eventually, after she has had a child herself, she might come along to a birth, perhaps because her ailing grandmother needs someone to walk with, and thus find herself doing for the woman in labor what other women had done for her when she gave birth; that is, she may take a turn . . . at supporting the laboring

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woman. . . . Eventually, she may even administer prenatal massages to selected clients. At some point, she may decide that she actually wants to do this kind of work. She then pays more attention, but only rarely does she ask questions. Her mentor sees their association primarily as one that is of some use to her. ("Rosa already knows how to do a massage, so I can send her if I am too busy.") As time goes on, the apprentice takes over more and more of the work load, starting with the routine and tedious parts, and ending with what is in Yucatan the culturally most significant, the birth of the placenta [Jordan 1989: 932--4].

THE APPRENTICESHIP OF VAI AND GOLA TAILORS

Vai and Gola tailors enter and leave apprenticeship ceremoniously. Their apprenticeship is quite formal in character compared to that of the Yucatec midwives. In an insightful historical analysis, Goody (1989) argues that in West Africa apprenticeship developed a formal character in response to a diversification of the division of labor. This development involved a transition from domestic production in which children learned subsistence skills from their same-sex parent, to learning part-time specialisms in the same way, to learning a specialized occupation from a specialist master. Household production units have moved from integrating their own children into productive activities, to including other kin, to incorporating nonkin, to production separated from the household. Today, many Vai and Gola craft shops are located in commercial areas, so that craft production is separated from

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craft masters' households by time and space. (These households, however, still include the apprentices who work in the shops.) Goody notes that there have been corresponding transformations in the relations between learners and communities of practice: from the child's labor that contributes use value to the household, to exchange of child labor between related families for political/social resources (fostering) or economic ones (pawning, slavery), to apprenticeship where learners' labor is exchanged for opportunities to learn. Learning to produce has changed thereby from a process of general socialization; to what might be called contrastive general socialization (as children grow up in households different from their own); to apprenticeship, which focuses on occupational specialization loosely within the context of household socialization. Learners shifted from participating in the division of labor as household members, growing up in the "culture of the household's labor," to being naive newcomers, participating in an unfamiliar culture of production.

In summary, formalized apprenticeship in West Africa has developed as a mechanism for dealing with two needs generated by increasing diversification of the market and of the division of labor: the demand for additional labor, on the one hand, and on the other, the desires of individuals or families to acquire the knowledgeable skills of diverse occupations, desires which simply could not be met within the household (Goody 1989). The developmental cycles that reproduce domestic groups and other communities of practice, the relations of newcomers to those who are adept, and the way in which divisions of labor articulate various kinds of communities of practice in communities in the larger sense all shape the identities that may be constructed, and with them, knowledgeable, skillful activity. Nonetheless, the examples of the midwives

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and the tailors reveal strong similarities in the process of moving from peripheral to full participation in communities of practice through either formal or informal apprenticeship.

Between 1973 and 1978 . . . a number of Vai and Gola tailors clustered their wood, dirt-floored, tin-roofed tailor shops along a narrow path at the edge of the river at the periphery of . . . the commercial district. . . . There were several masters present in each shop visibly doing what masters do – each ran a business, tailored clothes, and supervised apprentices. Apprenticeship, averaging five years, involved a sustained, rich structure of opportunities to observe masters, journeymen, and other apprentices at work, to observe frequently the full process of producing garments, and of course, the finished products.

The tailors made clothes for the poorest segment of the population, and their specialty was inexpensive, ready-to-wear men's trousers. But they made other things as well. The list of garment types in fact encoded complex, intertwined forms of order integral to the process of becoming a master tailor [serving as a general curriculum for apprentices]. . . . Apprentices first learn to make hats and drawers, informal and intimate garments for children. They move on to more external, formal garments, ending with the Higher Heights suit.

The organization of the process of apprenticeship is not confined to the level of whole garments. The very earliest steps in the process involve learning to sew by hand, to sew with the treadle sewing machine, and to press clothes. Subtract these from the corpus of tailor-

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ing knowledge and for each garment the apprentice must learn how to cut it out and how to sew it. Learning processes do not merely reproduce the sequence of production processes. In fact, production steps are reversed, as apprentices begin by learning the finishing stages of producing a garment, go on to learn to sew it, and only later learn to cut it out. This pattern regularly subdivides [the learning of] each new type of garment. Reversing production steps has the effect of focusing the apprentices' attention first on the broad outlines of garment construction as they handle garments while attaching buttons and hemming cuffs. Next, sewing turns their attention to the logic (order, orientation) by which different pieces are sewn together, which in turn explains why they are cut out as they are. Each step offers the unstated opportunity to consider how the previous step contributes to the present one. In addition, this ordering minimizes experiences of failure and especially of serious failure.

There is one further level of organization to the curriculum of tailoring. The learning of each operation is subdivided into phases I have dubbed "way-in" and "practice." "Way in" refers to the period of observation and attempts to construct a first approximation of the garment. . . . The practice phase is carried out in a particular way: apprentices reproduce a production segment from beginning to end, . . . though they might be more skilled at carrying out some parts of the process than others [Lave in preparation].

THE APPRENTICESHIP OF NAVAL
QUARTERMASTERS

Hutchins (in press) has carried out ethnographic research on an amphibious helicopter-transport ship of the U.S. Navy. He describes the process by which new members of the quartermaster corps move from peripheral to key distributed tasks in the collaborative work of plotting the ship's position. He emphasizes the importance for learning of having legitimate, effective access to what is to be learned.

Quartermasters begin their careers with rather limited duties and advance to more complicated procedures as they gain expertise. . . . Any new quartermaster needs to learn to plot the ship's position, either alone when at sea, or in collaborative work with five others when moving into harbors. It takes about a year to learn the basics of the quartermaster rate. For a young man entering the quartermaster rate, there are many sources of information about the work to be done. Some go to specialized schools before they join a ship. There they are exposed to basic terminology and concepts, but little more. In some sense, they are "trained" but they have no experience. (In fact, the two quartermaster chiefs with whom I worked most closely said they preferred to get their trainees as able-bodied seamen without any prior training in the rate. They said this saved them the trouble of having to break the trainees of bad habits acquired in school.) Most quartermasters learn their rating primarily on the job [though] some of the experience aboard ship is a bit like school with workbooks and exercises. In order to advance to higher ranks

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. . . novice quartermasters participate in joint activity with more experienced colleagues in two contexts: Standard Steaming Watch and Sea and Anchor Detail.

[At sea] depending upon the level of experience of the novice he may be asked to perform all of the duties of the quartermaster of the watch. While under instruction, his activities are closely monitored by the more experienced watch stander who is always on hand and can help out or take over if the novice is unable to satisfy the ship's navigation requirements. However, even with the help of a more experienced colleague, standing watch under instruction requires a significant amount of knowledge, so novices do not do this until they have several months of experience. . . . The task for the novice is to learn to organize his own behavior such that it produces a competent performance. . . . As [the novice] becomes more competent, he will do both the part of this task that he [performed before], and also the organizing part that was done [for him]. . . . Long before they are ready to stand watch under instruction in standard steaming watch, novice quartermasters begin to work as fathometer operators and bearing takers in sea and anchor detail; . . . there are six positions involved, and novice quartermasters move through this sequence of positions, mastering each before moving on to the next. This ordering also describes the flow of information from the sensors (fathometer and sighting telescopes) to the chart where the information is integrated into a single representation (the position fix). . . . The fact that the quartermasters themselves follow this same trajectory through

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the system as does sensed information, albeit on a different time scale, has an important consequence for the larger system's ability to detect, diagnose, and correct errors. . . . [Besides], movement through the system with increasing expertise results in a pattern of overlapping expertise, with knowledge of the entry level tasks most redundantly represented and knowledge of expert level tasks least redundantly represented.

. . . The structure of the distributed task [fix taking among the collaborating six quartermasters] provides many constraints on the learning environment. The way a task is partitioned across a set of task performers has consequences for both the efficiency of task performance and for the efficiency of knowledge acquisition. . . . [So do] lines of communication and limits on observation of the activities of others. . . . But being in the presence of others who are working is not always enough by itself. . . . We saw that the fact that the work was done in an interaction between members opened it to other members of the team. In a similar way, the design of tools can affect their suitability for joint use. . . . The interaction of a task performer with a tool may or may not be open to others depending upon the nature of the tool itself. The openness of a tool can also affect its use as an instrument in instruction.

A good deal of the structure that a novice will have to acquire in order to stand watch alone in standard steaming watch is present in the organization of the relations among the members of the team in sea and anchor detail. The computational dependencies among

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the steps of the procedure for the individual watchstander are present as interpersonal dependencies among the members of the team [Hutchins in press].

THE APPRENTICESHIP OF MEAT CUTTERS

Our use of apprenticeship as a source of insights for exploring the concept of legitimate peripheral participation cannot be construed as a general claim that apprenticeship facilitates learning-in-practice in some inevitable way. Not all concrete realizations of apprenticeship learning are equally effective. The exchange of labor for opportunities to become part of a community of mature practice is fraught with difficulties (Becker 1972). The commoditization of labor can transform apprentices into a cheap source of unskilled labor, put to work in ways that deny them access to activities in the arenas of mature practice. Gaining legitimacy may be so difficult that some fail to learn until considerable time has passed. For example, Haas (1972) describes how high-steel-construction apprentices are hazed so roughly by old-timers that learning is inhibited. Gaining legitimacy is also a problem when masters prevent learning by acting in effect as pedagogical authoritarians, viewing apprentices as novices who "should be instructed" rather than as peripheral participants in a community engaged in its own reproduction.

The example of the butchers illustrates several of the potential ways in which particular forms of apprenticeship can prevent rather than facilitate learning. The author discusses the effects, frequently negative, of trade-school training for butchers. This study, like other studies of trade schools and training

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programs in the apprenticeship literature, is quite pessimistic about the value of didactic exercises (e.g., Jordan 1989, Orr 1986, as well as the excerpt from Hutchins). It should be kept in mind that many contemporary vocational education and union-based "apprenticeship" programs implicitly reject an apprenticeship model and strive to approximate the didactic mode of schooling in their educational programs, which inevitably adds to the difficulties of implementing effective apprenticeship.

Butchers' apprenticeship consists of a mix of trade school and on the job training. [This program was] started by the meat cutters' union to grant a certificate. The certificate equaled six months of the apprenticeship and entitled the holder to receive journeyman's pay and status after two and one-half years on the job. . . . To justify awarding the certificate, the trade school class runs in traditional fashion, with book work and written examinations in class and practice in shop. The work follows the same pattern year after year without reference to apprentices' need to learn useful things not learned on the job. Teachers teach techniques in use when they worked in retail markets that are readily adaptable to a school setting. . . . Most assignments are not relevant to the supermarket. For instance, students learn to make wholesale cuts not used in stores, or to advise customers in cooking meat. Because these are not skills in demand, few students bother to learn them. . . . Apprentices are more interested in the shop period, where they become familiar with equipment they hope to use someday at work. But the shop, too, has tasks useless in a supermarket. One of the first things learned is how to sharpen a knife – a vital task

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only in the past. Today, a company delivers sharpened knives and collects dull ones from meat departments at regular intervals. . . .

On the job, learning experiences vary with certain structural dimensions of the work settings. A supermarket meat department manager tries to achieve an advantageous difference between the total volume of sales for the department and the wholesale price of his meat order, plus his costs for personnel and facilities. To do this, the manager sees to it that his skilled journeymen can prepare a large volume of meat efficiently by specializing in short, repetitive tasks. He puts apprentices where they can work for him most efficiently. Diverting journeymen from work to training tasks increases the short-run cost of selling meat. Because journeymen and apprentices are so occupied with profit-making tasks, apprentices rarely learn many tasks. . . .

The physical layout of a work setting is an important dimension of learning, since apprentices get a great deal from observing others and being observed. Some meat departments were laid out so that apprentices working at the wrapping machine could not watch journeymen cut and saw meat. An apprentice's feeling about this separation came out when a district manager in a large, local market told him to return poorly arranged trays of meat to the journeymen. "I'm scared to go in the back room. I feel so out of place there. I haven't gone back there in a long time because I just don't know what to do when I'm there. All those guys know so much about meat cutting and I don't know anything."

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When he arrives at a store, an apprentice is trained to perform a task, usually working the automatic wrapping machine. If he handles this competently, he is kept there until another apprentice comes. If none comes, he may do this job for years almost without interruption. If a new apprentice comes, he trains him to wrap and then learns another task himself. . . . Stores offer the kind of meat customers in their locale will buy. . . . In poor neighborhoods, apprentices have more opportunity to practice cutting meat than in wealthy neighborhoods [due to lower error cost]. [Where there is high volume] a division of labor among a relatively large number of workers increases efficiency. . . . In this situation, not only apprentices but journeymen, too, seldom learn the full range of tasks once proper to their trade [Marshall 1972: 42-6].

THE APPRENTICESHIP OF NONDRINKING ALCOHOLICS

The descriptions of apprenticeship in midwifery, tailoring, and quartermastering provide examples of how learning in practice takes place and what it means to move toward full participation in a community of practice. A more detailed view of the fashioning of identity may be found in an analysis of the process of becoming a nondrinking alcoholic through Alcoholics Anonymous. An apprentice alcoholic attends several meetings a week, spending that time in the company of near-peers and adepts, those whose practice and identities are the community of A. A. At these meetings old-timers give testimony about

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their drinking past and the course of the process of becoming sober. In addition to "general meetings," where old-timers may tell polished, hour-long stories – months and years in the making – of their lives as alcoholics, there are also smaller "discussion meetings," which tend to focus on a single aspect of what in the end will be a part of the reconstructed life story (Cain n.d.).

The notion of partial participation, in segments of work that increase in complexity and scope, a theme in all the analyses of apprenticeship discussed here, also describes the changing form of participation in A. A. for newcomers as they gradually become old-timers. In the testimony at early meetings newcomers have access to a comprehensive view of what the community is about. Goals are also made plain in the litany of the "Twelve Steps" to sobriety, which guide the process of moving from peripheral to full participation in A. A., much as the garment inventory of the tailors' apprentices serves as an itinerary for their progress through apprenticeship. The contribution of an absolutely new member may be no more than one silent gesture – picking up a white chip at the end of the meeting to indicate the intention not to take a drink during the next 24 hours (Cain n.d.). In due course, the Twelfth-Step visit to an active drinker to try to persuade that person to become a newcomer in the organization initiates a new phase of participation, now as a recognized old-timer. Cain (n.d.) argues that the main business of A. A. is the reconstruction of identity, through the process of constructing personal life stories, and with them, the meaning of the teller's past and future action in the world.

The change men and women . . . undergo . . . is much more than a change in behavior. It is a transformation of their identities, from drinking non-alcoholics to non-

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drinking alcoholics, and it affects how they view and act in the world. . . . One important vehicle for this is the personal story. . . .

By "identity" I mean the way a person understands and views himself; and is viewed by others, a perception of self which is fairly constant. . . . There are two important dimensions to the identity of A. A. alcoholic. The first distinction which A. A. makes is alcoholic and non-alcoholic, where alcoholic refers to a state which, once attained, is not reversible. The second is drinking and non-drinking, and refers to a potentially controllable activity. . . . There are therefore two aspects of the A. A. alcoholic identity important for continuing membership in A. A.; qualification as an alcoholic, which is based on one's past, and continued effort at not drinking. The A. A. identity requires a behavior - not drinking - which is a negation of the behavior which originally qualified one for membership. One of the functions of the A. A. personal story is to establish both aspects of membership in an individual. . . . In personal stories, A. A. members tell their own drinking histories, how they came to understand that they are alcoholics, how they got into A. A., and what their life has been like since they joined A. A. . . .

In A. A. personal stories are told for the explicit, stated purpose of providing a model of alcoholism, so that other drinkers may find so much of themselves in the lives of professed alcoholics that they cannot help but ask whether they, too, are alcoholics. Since the definition of an alcoholic is not really agreed on in the wider culture, arriving at this interpretation of events

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is a process negotiated between the drinker and those around her. A. A. stories provide a set of criteria by which the alcoholic can be identified. . . . A. A. recognizes their importance, and dedicates a significant amount of meeting time and publishing space to the telling of these stories. A. A. members tell personal stories formally in "speakers' meetings." . . . Less formally, members tell shortened versions of their stories, or parts of them, at discussion meetings. . . . The final important context for telling personal stories is in "Twelfth Step calls." When A. A. members talk to outsiders who may be alcoholics in a one-to-one interaction, they are following the last of the Twelve Steps. . . . Ideally, at these individual meetings, the member tells his story, tells about the A. A. program, tries to help the drinker see herself as an alcoholic if she is "ready." [Members] claim that telling their own stories to other alcoholics, and thus helping other alcoholics to achieve sobriety, is an important part of maintaining their own sobriety. [At the same time] telling a personal story, especially at a speaker's meeting or on a Twelfth Step call, signals membership because this "is the time that they [members] feel that they belong enough to 'carry the message'."

Telling an A. A. story is not something one learns through explicit teaching. Newcomers are not told how to tell their stories, yet most people who remain in A. A. learn to do this. There are several ways in which an A. A. member learns to tell an appropriate story. First, he must be exposed to A. A. models. . . . The newcomer to A. A. hears and reads personal stories from the time of early contact with the program —

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through meetings, literature, and talk with individual old-timers. . . . In addition to learning from the models, learning takes place through interaction. All members are encouraged to speak at discussions and to maintain friendship with other A. A. members. In the course of this social interaction the new member is called on to talk about her own life. . . . This may be in bits and pieces, rather than the entire life. For example, in discussion meetings, the topic of discussion may be "admitting you are powerless," "making amends," "how to avoid the first drink," or shared experiences in dealing with common problems. . . . One speaker follows another by picking out certain pieces of what has previously been said, saying why it was relevant to him, and elaborating on it with some episode of his own. . . . Usually, unless the interpretation runs counter to A. A. beliefs, the speaker is not corrected. Rather, other speakers will take the appropriate parts of the newcomer's comments, and build on this in their own comments, giving parallel accounts with different interpretations, for example, or expanding on parts of their own stories which are similar to parts of the newcomer's story, while ignoring the inappropriate parts of the newcomer's story.

In addition to the structure of the A. A. story, the newcomers must also learn the cultural model of alcoholism encoded in them, including A. A. propositions, appropriate episodes to serve as evidence, and appropriate interpretations of events. . . . Simply learning the propositions about alcohol and its nature is not enough. They must be applied by the drinker to his own life, and this application must be demon-

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strated. . . . In A. A. success, or recovery, requires learning to perceive oneself and one's problems from an A. A. perspective. A. A.s must learn to experience their problems as drinking problems, and themselves as alcoholics. Stories do not just describe a life in a learned genre, but are tools for reinterpreting the past, and understanding the self in terms of the A. A. identity. The initiate begins to identify with A. A. members. . . . She comes to understand herself as a non-drinking alcoholic, and to reinterpret her life as evidence.

APPRENTICESHIP AND SITUATED LEARNING: A NEW AGENDA

We have seen apprenticeship here in conjunction with various forms for the organization of production. There are rich relations among community members of all sorts, their activities and artifacts. All are implicated in processes of increasing participation and knowledgeability. To a certain extent the ethnographic studies excerpted here focus on different facets of apprenticeship. The Yucatec study addresses the puzzle of how learning can occur without teaching and without formally organized apprenticeship. The analysis of Vai apprenticeship contributes to resolving the puzzle in laying out the curriculum of everyday practice in Vai tailor shops. Hutchins analyzes relations between the flow of information in a pivotal task and the trajectories of persons through different forms of participation in the task, in the course of which he problematizes the question of learners' access to important learning resources.

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Once raised, the "dark side" of questions of access, vividly laid out in the butchers' example, helps to underline the crucial character of broad, and broadly legitimate, peripheral participation in a community of practice as central for increasing understanding and identity. And turned back on the Yucatec and Vai studies, these questions suggest a transmutation of preoccupations with teaching and with formal, intentional learning situations into cases in which access to all the means and grounds of membership is virtually a matter of course. If masters don't teach, they embody practice at its fullest in the community of practice. Becoming a "member such as those" is an embodied telos too complex to be discussed in the narrower and simpler language of goals, tasks, and knowledge acquisition. There may be no language for participants with which to discuss it at all – but identities of mastery, in all their complications, are there to be assumed (in both senses).

The importance of language should not, however, be overlooked. Language is part of practice, and it is in practice that people learn. In Cain's ethnographic study of identity construction in A. A., talk is a central medium of transformation. Whether activity or language is the central issue, the important point concerning learning is one of access to practice as resource for learning, rather than to instruction. Issues of motivation, identity, and language deserve further discussion.

We would be remiss, in any discussion of converging characterizations of apprenticeship, if we did not include Becker's pathbreaking analysis, which preceded all the ethnographic studies discussed here with the exception of Marshall's. Indeed, he compared research in schools with research on American trade apprenticeship, including Marshall's research on the butchers. He insisted on the significance of the broad initial view that taking part in ongoing work activities offers to new-

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comers, the value of being in relevant settings for learning, the existence of strong goals for learning in work-learning settings, the absence of tests, and the greater effectiveness of apprenticeship than school. He further assumed, in contradistinction to the examples discussed here, that teaching is central to learning through apprenticeship; and that apprentices, individually, must organize their own learning "curriculum" and recruit teaching or guidance for themselves.

In these respects, the present studies pose novel questions, given their more insistent focus on learning resources in the community than on teaching and "pupil initiative." However, they are perhaps too quick to assume that an explanation of community learning resources is to be found in the "work-driven" nature of apprenticeship. If apprenticeship is a form of education in which work and learning are seamlessly related, it is nonetheless a form in which the work and understanding of newcomers bear complex and changing relations with ongoing work processes; the structure of production and the structure of apprenticeship do not coincide as a whole (though they may do so for given tasks, e.g., plot-fixing for the quartermasters). This has interesting, also complex, implications for processes of deepening and changing understanding for all members of a community of practice.

Becker raises a serious new set of concerns about the issue of access. He recognizes the disastrous possibilities that structural constraints in work organizations may curtail or extinguish apprentices' access to the full range of activities of the job, and hence to possibilities for learning what they need to know to master a trade. In particular, he raises more acutely than the ethnographic studies discussed here the conflictual character of access for newcomers, the problems about power and control on which these studies are on the whole silent.

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Neither Becker nor the ethnographic studies address the implications of conflictual community practice in conjunction with identity development, a problem to be taken up shortly.

In sum, a first reading of these examples along with Becker's work, takes us a considerable distance in redescribing and resetting an agenda of questions for the analysis of situated learning. But we will need to turn the problems of access, of its embedding in the conflictual forms of everyday practice, of motivation, and of the development of membership/identity into objects of analysis. The theoretical framework of legitimate peripheral participation may be used to launch us on this task in the next chapter.