

# Chapter 3

## Ecologies of Practices

### Introduction

In this chapter we will establish the case that there are connections between practices, and that these connections are developed in particular sites, and in specific relationships between different practices. In Chap. 2, the nature of practices and the theory of *practice architectures* were discussed, and now we want to show that practices are established and exist in sites in ecological arrangements. These ecological arrangements are characterised by interdependence among practices and among the practice architectures that hold different practices in place.

We have developed our theory of ecologies of practices in response to our observations of cases in which the *sayings, doings and relatings* that come into being as one practice unfolds become practice architectures that enable and constrain another practice. Thus, for example, the practice of teaching can become a practice architecture for the practice of student learning. In this case, the *sayings, doings and relatings* that constitute a particular practice of teaching become part of the practice architecture that supports the practice of learning; the teacher's sayings, doings and relatings become practice architectures for the students' learning. To put it more precisely, the specific *cultural-discursive, material-economic and social-political arrangements*) that come into being and are materialised in the unfolding of a particular practice of teaching (teacher's sayings, doings and relatings) in a particular site enable and constrain the way the practice of learning can unfold for the students in the site.

We do not think of these relationships between practices only in abstract or general terms—like the generalisation that teaching can influence learning. Our theory of ecologies of practices makes us carefully attentive to how the particulars of one practice, as it unfolds, creates practice architectures for other practices that are also found in particular sites. Our attention is not on how different participants co-inhabit a site, but on how different practices co-inhabit and co-exist in a site, sometimes leaving residues or creating affordances that enable and constrain how other practices can unfold. We think that the strength of the ontological perspective on practices we take in this book lies in its challenge to *general* and *abstract* ways of thinking about practices, and its insistence on seeing how practices and practice architectures

exist *in reality*. We are not so much interested in saying that, *in general*, practices and practice architectures of *professional learning* shape practices and practice architectures of *teaching*, for example, as in showing how *in practice*, the particular practices and practice architectures of one practice come to shape or be shaped by the practices and practice architectures of another practice. This perspective might once have been described in terms of the ‘natural history’ of practices, but might nowadays be thought of in terms of ecologies and ecological relationships.

As we will show, the relationships between some practices can be understood using the notion of *ecologies of practices* (note that we say ‘ecologies of practices’, in the plural, not ‘ecologies of practice’). In particular, we want to say that the five practices that are the focus of our interest in this book—(1) student learning, (2) teaching, (3) professional learning, (4) leading, and (5) researching—are frequently in relationships of ecological interdependence—but that we need to study how these practices appear in actual sites to know *how* they are or are not in fact ecologically interdependent.

We begin this chapter by critiquing some earlier uses of the term ‘ecologies of practice’ (note that the ‘practice’ here is in the singular). We also make reference to Fritjof Capra’s theory of living systems that provides some concepts that we find helpful for describing how practices can sometimes be in relationships of interdependence. Then, based on our empirical and theoretical work, we present our theory of ecologies of practices. In Chap. 4–8, we present detailed evidence from our observations in the *Leading and Learning* project to show how some particular practices of (1) student learning, (2) teaching, (3) professional learning, (4) leading and (5) researching are sometimes dependent on one another.

## Critiquing the Notion of ‘Ecologies of Practice’

The notion of ‘ecologies of practice’ (note that the ‘practice’ here is in the singular) is not new. Others have used the term in different ways. An early and striking usage is that of Stronach et al. (2002) (subsequently taken up by Fisher and Owen 2008). According to Stronach et al. (2002), ‘ecologies of practice’ refer to the sorts of individual and collective experiences, beliefs and practices that professionals accumulate in learning and performing their roles. They relate mainly to ‘craft knowledge’, and may be intuitive, tacit or explicit. They go on to suggest that the ‘ecologies of practice’ they identified in empirical studies of professionalism and professional identities in nursing and teaching

... comprised the accumulation of individual and collective experiences of teaching or nursing through which people laid claim to being ‘professional’—personal experience in the classroom/ clinic/ ward, commonly held staff beliefs and institutional policies based upon these, commitments to ‘child-centred’ or ‘care-centred’ ideologies, convictions about what constituted ‘good practice’, and so on. These generated a *tension* for professionals, and it seemed to us that it was in living this tension, with its contradictions, dilemmas, compromises, etc., that they experienced themselves as professionals. The job of understanding professional ‘work’ and ‘belief’, accordingly, involved reading these tensions, and locating ‘professional’ experiences betwixt and between these affiliations. (p. 122, emphasis in original)

This definition of 'ecologies of practice' seems to us to lack clarity and precision. Stronach et al. also indicate that 'ecologies of practice' have both individual and collective aspects. They say: "ecologies did not relate solely to the past, present and future of individual professionals. They were also *collectively experienced*..." (p. 124, emphasis original). Stronach et al. do not significantly elaborate the notion of 'ecologies of practice' in more theoretical detail, and their usage of the term remains metaphorical, and part of a "poetics" (Shotter 1996, p. 293). In fact, Stronach et al. introduced the term 'ecologies of practice' to make a deliberate (and poetic) contrast with the 'economies of performance' they observed in professional work settings. Their use of the notion of 'ecologies of practice,' however, remains under-theorised, and outside the kinds of contemporary practice theory that might give it more weight and clarity.

Another usage is the notion of 'ecology of practice' (note that in this usage, both the 'ecology' and the 'practices' are in the singular) discussed by Stengers (2005), subsequently taken up by Potter (2008). Stengers (2005) similarly seems to avoid clearly stating what ecologies of practice are, but at one point she says:

... each achievement in the ecology of practice, that is, each (always partial) relation between practices as such, as they diverge, must be celebrated as a 'cosmic event', a mutation which does not depend on humans only, but on humans as belonging, which means they are obliged and exposed by their obligations. Such an event is not something that can be produced at will. (p. 192)

Commenting on Stengers's (2005) conceptualisation of the 'ecology of practice', Potter (2008) clarifies some of Stengers's (2005) esoteric discussion of the relationships between practices, belonging and obligation. She writes:

Stengers' response to [the] defensive relationship between different disciplinary practices is to advocate an 'ecology of practices' as an innovative 'tool for thinking through' what concerns us (p. 185)... The ecology of practices model is an alternative approach to the 'warring' of knowledges around a given topic: its view is that no single practice can claim authority in its access to reality, and proceeds by the demand 'that no practice can be defined as "like any other", just as no living species is like any other'. That is, the divergence of practices is a point of engagement. (p. 184)

Within this ecology, disciplinary boundaries signal the space of relations *between* practices as active and meaningful rather than as sites of irreconcilable difference. An ecology of practice insists that reality will not be revealed by a single knowledge: what is real appears incrementally as knowledges /practices cluster and brew. These knowledges/ practices are situated and contingent, informed by local conditions, both material and discursive, that make an omniscient viewpoint impossible. By recognizing what attaches practitioners to their particular interests and methods, the fantasy of the nomadic scholar, "free to go everywhere, to enter any practical territory, to judge, deconstruct or disqualify..." (Potter, p. 191) is fundamentally challenged.

While Stengers (2005) and Potter (2008) do not clearly elaborate their theory of the ecology of practice, Weaver-Hightower (2008) does offer a theoretical account of ecology. Weaver-Hightower uses ecology as a metaphor to orient the analysis of policy formation and implementation. He presents a more elaborate theorisation of the elements of an ecosystem and relates these notions to the social ecologies within

which policy are formed and implemented. For him, the ecology metaphor makes it possible to write about ‘policy ecologies’. He is critical of previous “thin” uses of the term ‘ecology’ where it was synonymous with ‘context’ or ‘environment’. He outlines the characteristics of policy ecologies in some detail, drawing on the definition of ‘ecology’ used in the life and physical sciences (that is, referring to a system of relationships among organisms and between organisms and their environments). In ecological science, each factor and organism has influence on the others, and many complex inter-relationships between them are required to sustain an ecological system. Weaver-Hightower aims to show that a *policy* ecology works in similar ways; as with any metaphor, however, he concedes that there are divergences (not all biological processes correspond to human social processes, and vice versa). He says:

A policy ecology centers on a particular policy or related group of policies, both as texts and as discourses, situated within the environment of their creation and implementation. In other words, a policy ecology consists of the policy itself along with all of the texts, histories, people, places, groups, traditions, economic and political conditions, institutions, and relationships that affect it or that it affects. For every contextual factor and person contributing to or influenced by a policy in any capacity, both before and after its creation and implementation, is part of a complex ecology. (p. 155)

Weaver-Hightower (2008) makes a contribution to understanding what an ‘ecology’ is and might be in the case of social fields and, in particular, the field of policy. He usefully elaborates a number of concepts which he takes to be crucial to an ecological perspective, including *actors, relationships, environments and structures, and processes* to be found in an ecology. However, he remains clear that his use of the term ‘ecology’ is *metaphorical*—which suggests that he does not expect his elaboration of the interrelations between the categories and elements he identifies to describe actual (non-metaphorical) entities and relationships in the world. Furthermore, several things seem to be missing from his view of ecological relationships, especially when we adopt Schatzki’s (2003) perspective of a ‘site ontology’. We aim to show how the notion of ‘site ontology’ helps to give a better *grounding* for an ecological conception of the creation and implementation of a policy in a specific place, and a greater sense of the *concreteness* of actual social relations, as distinct from kinds of the *universalistic* or *generalising* ambitions of Weaver-Hightower’s account of policy ecologies. These universalising ambitions are contrary to the more modest ambitions of social description adopted by Schatzki which focus on the *local and situated*, though they may also still hold out the promise of universal understandings of the nature of social life.

Thus, in our view, Weaver-Hightower’s (2008) use of the ecological metaphor is instructive, but remains at a general, rather abstract level. While the conception of ‘ecology of practice’ offered by Stengers (2005) offers some useful insights, it remains theoretically vague. In the case of Stronach et al., the term seems to be used merely as a felicitous phrase rather than a theory of the interdependent and interconnected nature of practices.

In this chapter, we make a case for a theory of ecologies of practices which goes beyond earlier notions. In subsequent chapters, we will provide detailed illustrations of how practices sometimes relate to one another ‘ecologically’.

## Ecologies of Practices as ‘Living’ Systems

Can we regard a practice *as* a living thing, or as *like* a living thing? We are not sure we can answer this question definitively. Certainly, however, practices *depend* on one key kind of living thing: the people who enact them. We are aware, however, that practices are also shaped by many non-living and non-human things—like a roof that shelters practitioners from sun or rain, the gravity that holds people in place, or the interactive whiteboard that a teacher uses in a lesson. Practitioners—people—might in one sense thus be ‘motors’ for practices, so practices might be ‘living’ because they have this organic connection with practitioners.

We want to say more than this, however. We want to say that practices also ‘feed’ one another, as we hope teaching sometimes ‘feeds’ learning. In such cases, we want to say that the ‘outputs’ of teaching might be the ‘inputs’ of learning, or, better, that the practice of teaching in such a case is among the conditions that shape the practice of learning. Perhaps not only what is learned in such a case is also *dependent* on what is taught, but also the conduct of learning is *conditioned*—shaped—by the conduct of teaching, in a kind of reciprocal ‘dance’ between the practices of teaching and learning. We might note, too, that the conduct of the practice of teaching may also be dependent on the conduct of the practice of learning—how students conduct themselves also directs, to some extent, how the teacher conducts herself.

And we want to say still a little more than this. We want to say that, in reality, in places and situations like the ones we have studied, we can see webs of connections between the five practices of student learning, teaching, professional learning, leading and researching. Sometimes not all practices are present (it might not be evident how practices of researching have shaped practices of teaching, for example), and sometimes the relationships may not be as strong (for example if we cannot see a strong influence of practices of researching on practices of student learning in the site). But we have been able to see interconnections between these practices in many cases, and often, in the schools and classrooms we have observed, we can see strong traces of the interconnection and interdependence of practices on one another.

We see these interconnections in the sayings, doings and relating of practices, and how they are shaped by the practice architectures (cultural-discursive, material-economic and social-political arrangements) that make them possible. In particular, we see how the sayings, doings and relating of one practice are shaped by the sayings, doings and relating of *another* practice—thus, for example, the words of the teacher, expressed in her teaching, may become the words of the students, assimilated in their learning. Thus, also, the words assimilated by a teacher in her professional learning become the words she uses in her teaching—and on into the words used by the students assimilated in *their* learning. These are the kinds of chains that lead us to think in terms of interdependencies, ecologies and eco-systems.

Thus we begin to ask what practices and practice architectures persist or endure or disappear over time; what new practices travel into a site or into the capabilities of the practitioners (and from where); and what practices and practice architectures

vary and change in relation to other practices and practice architectures, and so become transformed or even ‘evolve’ into other variant forms or even into different practices.

In short, we begin to ask about how different kinds of practices in the Education Complex—student learning, teaching, professional learning, leading, researching—relate to each other, and whether they do so in a way that might be described *as* (or *as like*) a living system. We might ask, for example, whether we see evidence that practices are *interdependent* (that each depends on the other to persist or to be reproduced) and whether this interdependence is can be seen in the form of a *network* of interrelationships. The work of Capra (for example 2005) is useful here for exploring the extent to which the relationships between practices can be described as living systems. It might be sufficient for us to say, on the basis of our thinking so far, only that practices relate to one another in ways that are *like* living systems (that is, living systems may be a metaphor for the way practices relate to one another), rather than that practices and/or their interrelationships *are* living systems. Nevertheless, we can explore the extent to which practices can relate to one another in ways that are like living systems using ideas like Capra’s.

Capra (2005) lists a number of key features of living systems. He writes:

First, *every living organism*, from the smallest bacterium to all the varieties of plants and animals, including humans, is a living system. Second, *the parts of living systems* are themselves living systems. A leaf is a living system. A muscle is a living system. Every cell in our bodies is a living system. Third, *communities of organisms*, including both ecosystems and human social systems such as families, schools and other human communities, are living systems. (p. 19; emphases in original)

He then lists a number of the key concepts which, he believes, provide “principles of ecology, principles of sustainability, principles of community, or even the basic facts of life” (p. 23). These key concepts or principles are:

*Networks*: “[M]embers of ecological communities derive their essential properties, and in fact their very existence, from their relationships”; “sustainability is not an individual property but a property of an entire network” (p. 23).

*Nested systems*: “At all scales of nature, we find living systems nested within other living systems—networks within networks. Although the same basic principles of organisation operate at each scale, the different systems represent levels of differing complexity” (pp. 23–4); life is to be found at different levels, for example, in cells within organisms, and organisms within communities of organisms.

*Interdependence*: “The sustainability of individual populations and the sustainability of the entire ecosystem are interdependent”; “The exchanges of energy and resources in an ecosystem are sustained by pervasive cooperation” (p. 24).

*Diversity*: “A diverse ecosystem will be resilient because it contains many species with overlapping functions that can partially replace one another”; “The more complex the network’s patterns of interconnections are, the more resilient it will be” (p. 25); different kinds of organisms are necessary to one another in an ecosystem; such a view implies not only difference but also distribution of entities in time and space.

*Cycles*: “Matter cycles continually through the web of life” (p. 25), for example, in food chains, and “An ecosystem generates no waste” (p. 26).

*Flows*: “All living systems, from organisms to ecosystems, are open systems. Solar energy, transformed into chemical energy by the photosynthesis of green plants, drives most ecological cycles, but energy itself does not cycle” (p. 26); ecological systems are “dependent on a constant inflow of energy” (p. 26).

**Table 3.1** Capra’s principles of ecology as criteria for determining whether practices and ecologies of practices are living systems in ecological relationships

Concept	If ecologies of practices are living systems, then
<i>Networks</i>	Different practices would derive their essential properties and their existence from their relationships with other practices
<i>Nested systems</i>	Different levels and networks of practices would be nested within one another
<i>Interdependence</i>	The sustainability of different practices (understood as different species of practice, manifested in reality in particular individual instances of that practice) would be dependent on one another in ecologies of practices (understood as an ecosystem), and the sustainability of an ecology of practices would be dependent upon its relationships with other ecologies
<i>Diversity</i>	An ecology of practices would include many different practices with partially overlapping ecological functions that can partially replace one another
<i>Cycles</i>	It would be possible to observe some kind of matter cycling through practices—for example, as in a food chain
<i>Flows</i>	Energy would flow through the ecology of practices and the practices within it, being transformed from one kind of energy to another (in the way that solar energy is converted into chemical energy by photosynthesis) and eventually dissipated (as heat is lost from the bodies of living creatures)
<i>Development</i>	Practices would develop through stages, and an ecology of practices would also develop through stages
<i>Dynamic balance</i>	An ecology of practices would regulate itself through processes of self-organisation, and would (up to some breaking point) maintain its continuity in relation to internal and outside pressures

*Development:* “All living systems develop, and all development invokes learning” (p. 27); development occurs through stages, each one sustainable in its own right although it may then be superseded.

*Dynamic balance:* “All ecological cycles act as feedback loops, so that the ecological community continually regulates and organises itself” (p. 28); living systems adapt to changes within and to external pressures.

Capra’s principles invited us to explore whether and how practices relate to one another in ‘ecological’ ways, and whether whole ecologies of practices might also relate to one another. Table 3.1 sets out Capra’s principles as criteria for investigating whether it is plausible to believe that practices and ecologies of practices relate to other practices and other ecologies of practices in ecological ways.

As we consider the relationships between practices in the table for analysing ecologies of practices (Table 3.1), then, we can also ask ourselves whether the relationships between the practices we observe display any of the features listed in Capra’s principles of ecology. With some exceptions, we have not used these principles explicitly as we discuss the ecological relationships between practices in the examples that appear in Chap. 4–8. They have been in the background of our analyses, nonetheless. For examples of explicit analytic use of the principles, we invite readers to refer to some of our previous work (for example, Kemmis et al. 2012; Edwards-



Groves and Rönnerman 2013), where we have described how practices of student learning, teaching, teacher learning, leading and research appear to interrelate in ecologies of practices in ways that show evidence of the features listed by Capra.

## Ecologies of Practices in the Education Complex

As indicated earlier, we use the term ‘ecologies of practices’ in a way different way from the way ‘ecologies of practice’ has previously been employed in the literature, and with an eye to Capra’s understanding of the intrinsically interrelated nature of specific ‘living’ systems. Our notion of ‘ecologies of practices’ encompasses the ideas that the form and content of one practice may change the form and content of another and that practices can travel from site to site. The evidence from our study of practices shows that the form and contents of one practice can become part of the practice architecture of another, so the second practice is differently supported and can thus be transformed. This notion may help to elucidate what Lingard and Rawolle (2004) have described as “cross-field effects”, that is, how connections between different autonomous fields (such as the media and education) can be thought about. The notion of ‘travelling practices’ might suggest *how* cross-field effects can occur.

Not only do we see practices as ecologically arranged because we have observed that in particular cases and under particular conditions, practices are interdependent and interrelated; we have also observed that practices sometimes arise in relation to one another in a particular site.

Defining ‘ecologies of practice’, Kemmis and Mutton (2012, p 15) wrote:

By ecologies of practice we mean distinctive interconnected webs of human social activities (characteristic arrangements of sayings, doings and relatings) that are mutually-necessary to order and sustain a practice as a practice of a particular kind and complexity (for example, a progressive educational practice).

Note that since the Kemmis and Mutton (2012) definition above, we have begun to use the plural ‘practices’ to emphasise that an ecology of practices involves various different kinds of practices that co-exist in a site. Nevertheless, the Kemmis and Mutton definition clearly posits that practices shape, and are shaped, by one another in particular ways—the sayings, doings, and relatings of practices shape and are shaped by the sayings, doings, and relatings of other practices in the site. Furthermore, practices can sustain (that is, symbiotically and interdependently) or suffocate other practices, and different ‘ecologies of practices’ may be hospitable to some practices and not to others.

As we have indicated, we are especially interested in how five different kinds of educational practices relate to one another—or do not relate to one another—in specific sites. In general, these five kinds of practices have existed in *some* kind of relationship to one another since the rise of compulsory schooling (although some of the interrelationships were also evident prior to this time). The rapid rise of mass schooling in the twentieth century required the formation and development of a range of concurrent educational practices that have continued to develop in more or less loosely coupled ways, with different practices often influencing one another

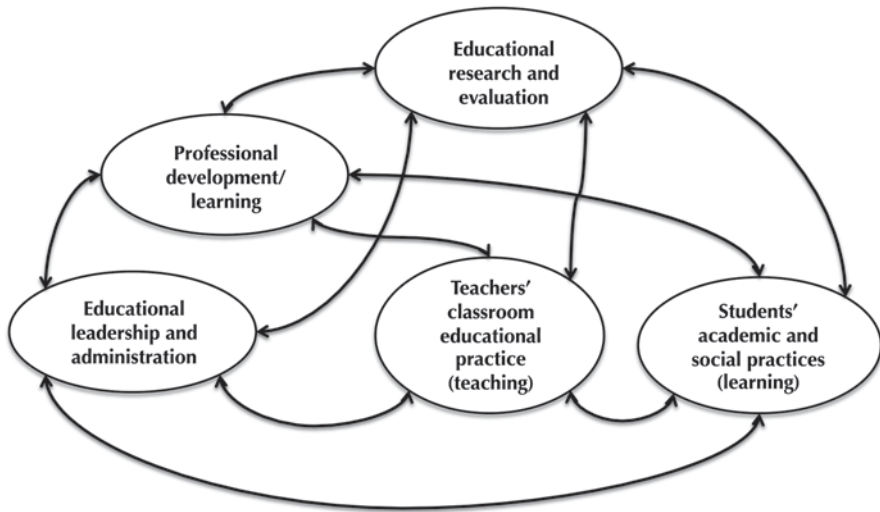


unidirectionally or reciprocally. In a real sense, the rise of mass schooling stimulated the range of related and inter-connected practices that we have described as together constituting the ‘Education Complex’:

- *student learning*;
- *teaching*;
- initial and continuing teacher education and continuing professional development—described here as *professional learning*;
- educational leadership and administration—described here as *leading*; and,
- educational research, critical evaluation and evaluation—described here as *researching*.

All of these practices, especially student learning and teaching, existed in one form or another before the rise of compulsory mass schooling. Once mass schooling emerged as a nation building project for the nation-states in the West, however, the relationships between them became more elaborate, more organised and more orchestrated. Once mass schooling emerged, these five kinds of practices began to be regarded as mutually necessary within a single, coordinated project. Student learning was thought to depend on teaching; teaching was thought to depend on the initial and continuing professional development and professional learning of teachers; schools and school systems needed to be regulated by educational policy and administration and by various kinds of practices of leading; and all of these practices needed to be brought under the distinctively Enlightenment, modern eye of research and evaluation—so each could be improved in its connections with the others. Thus, it seems to us, the connections between these practices arose rapidly and simultaneously with the advent of mass schooling. From this moment, they were *designed* to be interdependent. And they still are: if change in education is to be wrought, then all five of these practices need to be changed in relation to one another. History indicates the resilience of the nature of the practices of teaching, learning, teacher education and continuing professional development, educational leadership and administration, and educational research, and their resistance to major reform. We contend that if educational change is to be realised, then the transformation agenda needs to address these practices not just one at a time; it seems to us that transformation of each requires the transformation of all five, in all their ecological interdependence.

On a smaller scale and in a simpler form, the way one practice shapes another and is shaped by other practices can be seen at a local level. Teachers may engage in a professional development program in response to some pedagogical need that arose in their classrooms, and they then change their pedagogy in response to their learning. In this case, the broad practices of teaching and professional development are symbiotically related, with each practice shaping and being shaped by the other; in this case, we might thus describe professional development as ‘nested’ within the Education Complex—the complex formed by the interdependence of these five educational practices. These general connections are illustrated in Fig. 3.1. As we will show in the sections to come, however, the interdependent relationships between these five kinds of practices were clearly evident in the practices and sites we studied in the *Leading and Learning* project.



**Fig. 3.1** The theory of ecologies of practices

## Concluding Comments

The broad program of education is made up of many practices including student learning, teaching, professional learning, leading, and researching. These practices emerged as key interrelated practices within the Educational Complex of practices which emerged with the rise of mass compulsory schooling in the mid-nineteenth century. These practices have existed in a complex set of interdependencies with one another ever since.

In this chapter, we have aimed to show that these five kinds of practices of education are intimately interrelated. We have suggested, but not yet shown, how they are ecologically arranged, not just in general, but in particular kinds of practices we observed at particular sites. (They do not always and everywhere connect with one another so constructively, however.). We will show how practices are sometimes ecologically arranged in Chap. 4–8, as we examine each of the practices in the Education Complex in turn—as we observed them in the schools we studied. In these chapters, we will show how the outputs of one practice in the Education Complex are sometimes inputs into other practices. One consequence of the ecological interdependence of practices in the Education Complex is that, if educational change is to be realised and secured, then change needs to occur in all practices in this ecology of practices, not just in one or another of them alone.

In this book we seek to show how the interdependent practices in the Education Complex are not vast ‘social structures’ that order the world uniformly throughout a classroom, school, School District or national jurisdiction. On the contrary, they are realised in everyday interactions between people, and between people and other objects, in millions of diverse sites around the world. They occur at particular times

and under particular conditions and circumstances that pertain at each particular site, involving particular people in particular kinds of sayings, doings and relatings made possible by the cultural-discursive, material-economic and social-political arrangements that pertain at the site. They occur, that is, *in and through practice*—they are realised and secured in real, everyday interactions between people, and between people and things in the world. These practices are typically nested within one another, and provide evidence of flows of energy and expertise between specific elements of regional and local sites.

Our practice theory view of practices sees them relentlessly as material, and as enacted by real participants and in relation to other people and things distributed in real space and in real time. Part of our task in our observations in our *Leading and Learning* project was to discern, as best we could, what ends participants acted towards in their practices, what motivated them to act, and the places and paths they travelled through as they practised. On this ontological view of practices, then, transforming schools and transforming education thus not only requires more than just changing teachers' pedagogical practices and the practice architectures that support their teaching, it also requires changing *the ecologies of practices* that exist in particular sites, including particular practices of student learning, particular practices of teaching, and particular practices of professional learning, leading, and researching. In each of the chapters that follows—in which we address these five practices in turn—we also see how each is shaped in ecologies of practices in which it co-exists interdependently with the others.

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