

**LEADING AND LEARNING: DEVELOPING ECOLOGIES OF
EDUCATIONAL PRACTICE**

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SYMPOSIUM: ECOLOGIES OF PRACTICE

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INTRODUCTION

We are currently working at Charles Sturt University² and in the international 'Pedagogy, Education and Praxis' research collaboration³ on a research program intended as a contribution to the development of contemporary practice theory. One focus of the program is developing an understanding of practices as living things, connected to one another in 'ecologies of practice'. In this paper, we explore the latter concept, drawing on a current project we are conducting which explores how educational administration, professional development, and teaching and student practices may connect to one another as mutually interdependent practices, each influencing and being influenced by one another.

THE PRACTICE THEORY RESEARCH PROGRAM

In our overall research program, we are developing a theory of practice as embedded in '*practice architectures*' (Kemmis & Grootenboer, 2008). The latter are the cultural-discursive, material-economic and social-political orders and arrangements that prefigure and shape the conduct of practice, that is, that shape the distinctive 'sayings', 'doings' and 'relatings' characteristic of a particular practice. These practice architectures give practices like education or farming

- their *meaning* and *comprehensibility* (in the cultural-discursive dimension, in semantic space, and in the medium of language),
- their *productiveness* (in the material-economic dimension, in physical space-time, and in the medium of work or activity), and
- their value in establishing *solidarity* among the people involved in and affected by a practice of a particular kind (in the social-political dimension, in social space, and in the medium of power).

As Theodore Schatzki (1996, 2001, 2002) suggests, the sayings and doings (and, we would add, the relatings) (Kemmis & Grootenboer, 2008) that compose a particular kind of practice, 'hang together' in a characteristic way in 'teleoaffective structures' that give a sense of purpose (the 'teleo' element) to practices as human-social projects of a particular kind, and that shape participants' commitments (the 'affective' element) to achieving this particular kind of purpose.

Not only does our research group see practices as embedded in practice architectures, we also see them as clustered together in relationships with other

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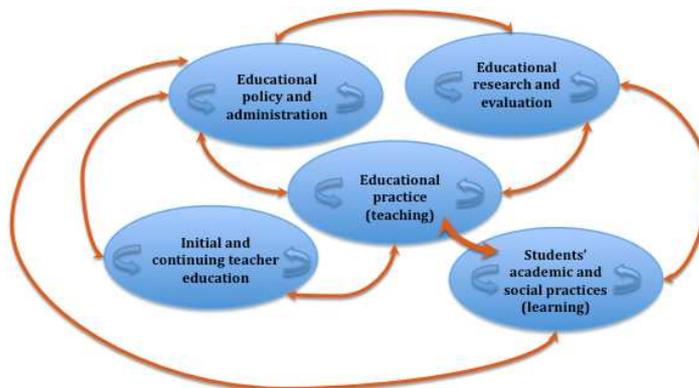
practices including practices we describe as '*metapractices*'. We define '*metapractices*' as practices that shape other practices (as the practice of education shapes practices of commercial and political life in a community, for example), and we are exploring a complex of metapractices in the field of education, each of which shapes and influences the others. In a current project, we are exploring how

- a. the *academic and social practices* of students in a group of primary schools are shaped by and shape →
- b. new and innovative *educational practices* of the teachers in these schools, which in turn are shaped by and shape →
- c. metapractices of *initial and continuing teacher education* which form and shape teachers' practices (we are focusing in particular on teachers' *formal* and *informal professional development* and *professional learning*), and how these, in turn, are shaped by and shape →
- d. metapractices of *educational policy and administration* which determine the resources, infrastructure and policies that influence the conditions for educational practice (we are focusing on different participants' practices of *leadership* in the primary schools we are studying), and how all of these are shaped by and shape →
- e. metapractices of *educational research and evaluation* that shape and are shaped by the practice of education and the other metapractices by suggesting how these other metapractices can be understood, and by monitoring the conduct and consequences of the other metapractices (in our study, for example, educational consultants assisting the schools have been introducing research-based ideas and practices like those of 'learning communities' and 'principles of effective practice').

In this complex of metapractices, we have begun to understand practices and metapractices as living things, as connected to one another in '*ecologies of practice*'. Thus, for example, since the rise of compulsory mass schooling in the nineteenth century in the West, the complex of metapractices of education, teacher education, educational policy and administration, and educational research and evaluation have been mutually interdependent, each influencing and being influenced by the others.

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Figure 1: An ecology of interconnected metapractices in education (including higher education)



We are also collecting evidence of the ecological relationships that exist in the detailed local connections between different kinds of *subsidiary practices* below the level of large-scale practices like ‘education’ or ‘farming’ or ‘history’. For example, in the large-scale practice of ‘education’ in the sites we are studying in our current research project, there are particular kinds of interconnection and interdependence between particular subsidiary practices of ‘teaching’ and particular corresponding practices of ‘learning’. In the schools we are studying, for example, the idea of ‘learning communities’ introduced through a campaign of consultancy over several years, is realised in one set of practices of ‘community’ and collaboration between teachers, in another similar set of collaborative academic and social practices among groups of learners, and also in changed relationships between teachers and students. The following quotations from initial interviews with a variety of education stakeholders in a regional Catholic diocese provide a flavour of the ecological ‘flows’ of learning community as they are translated into various forms of practice.

Learning community as ‘saying’ from a system perspective:

One of our priorities is to operate according to the principles of what we would consider to be a professional learning community, that we would operate not only as a CSO group of people using principles, highly effective professional learning, but we would also expect that those sorts of things would be in place within our schools as well (Interview with a senior member of Catholic Schools Office).

The six principles were outlined by one of the CSO (senior) Educational Consultants:

1. A focus on student learning
2. Collaborative learning
3. Shared norms and practices
4. De-privatisation of practice
5. Engagement in reflective dialogue
6. Relational trust

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The Consultant urged that these principles should be adopted at every level, from collaboration within the CSO's offices to relations between the CSO and schools, to relations between staff in schools, in relations between staff and students, and between students.

Learning community as 'doing' from a formal leadership perspective:

Everything we do we go back to those six practices and the essence of learning communities being around relationship support and challenge and we question ourselves the whole time, every time we introduce new things into the school, as to where it fits around your moral literacy and your social and emotional development and also around academic (Principal, Catholic school).

Learning community as 'doing' from a teaching perspective:

I think because we go beyond our comfort zones ... we're challenged to it ..I think it starts with X (principal). Because I think she's so proactive ... I can remember so many times when ... oh gosh she's got another idea, and I'd sit there and think oh not again, I'm going to have to change again, and I just couldn't cope with it initially ... (but) ... it's that flow on effect of ... she gets the executive on board and then like what she did with the Maths, she'll get some people on board to work with it, but then she doesn't leave the rest of us out who weren't involved in it, and then she has the staff meeting so everyone's involved in it ... and the rest of us are thinking well that's great, they're going to come back with all this good things for us and then we look at it and so I think it's a filtering effect... (Teacher, Catholic school).

Learning community as 'relating' from a teacher/student perspective:

(W)e don't have school captains here. All our year 6's, are just year 6 leaders. So, they just have roles and responsibilities, which are as low and degrading as doing the bins, and all of those things. And you know, there's different jobs.. And although, I'm sure not everyone has got great leadership skills, they all have something to offer...

Yeah. And as part of being leaders of the school, and as part of reaching out to other in the parish, we suggested that they go and spend some – you know, they were just rostered on to spend some time with the elderly people in the parish – and they loved it...

And then, last term – that was first term that we did the roster, and last term we didn't really get around to the roster. But after a few weeks there were – people were just going up – like, often it was the same groups, but there were a number that would come and say, oh can I go up today ... today...

(T)his morning- ... It was quite boring for us, wasn't it? We were wandering around and here they were teaching each other ...

Changing our practices, our understanding of our practices, and the conditions under which our practices are carried out requires changing the sayings, doings and relating that compose practices (Kemmis, 2009). Moreover, to change education involves also changing the practice architectures, that is, the mediating preconditions which prefigure educational practice. Hence, a major focus of our

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exploration of the transformation of educational practice in our current study involves exploring the changes that occur not only amongst practitioners but also in the practice architectures that prefigure the practice of education in these sites.

Thus, we expected to see, and indeed found, changes in the sayings, doings and relatings that compose the practices of leadership and professional learning in the CSO and the schools we studied.

Table 1: Changes in sayings, doings and relatings to establish 'professional learning communities' of system and school leaders, teachers and students

<i>Sayings</i>	Changes in the ideas about how leadership and learning was to be understood in the Diocese – e.g., the notion of 'professional learning communities' and the six principles noted earlier, and, with students, ideas like 'interdependency' as characteristic of collaboration in group work.
<i>Doings</i>	Changes in how things are done – e.g., collaboration in a variety of different kinds of activities, from staff performance management (now via professional learning plans) through to working via planning teams among school staff (with simultaneous release from teaching for shared planning) to (interdependent) group work in classrooms.
<i>Relatings</i>	Changes to how people relate to one another – e.g., from more hierarchical to consciously inclusive working relationships between staff in working teams (explicitly modelled by the CSO officers, by principals and school executive groups, and by groups of staff working on development projects), and between students in classrooms. These work relationships often extended to staff who had not previously worked together, and students who were not necessarily already friends.
<i>How this 'hangs together'</i>	Changes in sayings, doings and relatings that 'hang together' to form new ways of working – e.g., collaborative group work in various kinds of (small to large) 'projects for staff (shared development projects, for example) and for students (Year 6 as "all leaders' without school captains, as well as classroom projects of various sizes, for example). In fact, at each level, it appeared that a 'professional' ethos of collaboration was beginning to permeate working relationships between the CSO and schools, among staff in the schools, and among students.

If we also hope that a change in our practice will be sustained, then it will be important that our sayings, doings and relatings cohere with one another – that is, that they form coherent patterns that "hang together" (Schatzki, 2002, p. 18) and that allow us to know 'how to go on' in a practice such as learning communities in a coherent and appropriate way. In providing these snapshots of suggested transformations in the ways in which educators speak about, enact and relate with one another in one local case study, we are not suggesting that the sayings, doings and relatings of such learning communities 'hang together' entirely without

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contradiction or confusion in the saying, without clumsiness in the doing, or without conflict in the relating. The passage to learning communities in our example is neither seamless or without conflict. Rather, these contradictions, confusions and conflicts may be built into a practice such as learning communities and only become apparent after a long time, when longer term consequences emerge, and in the light of critical reflection. Some staff in the schools, for example, are reluctant or resistant participants in the new professional learning communities being established in their schools, and appear to stand back from whole-hearted participation in professional learning projects.

Our research program, then, which is developing a theory of practice, practice architectures, metapractices and ecologies of practice, is intended as a contribution to practice theory of the kind described by Schatzki (2001, 2002). Our research group aims to show how practices are shaped not solely by the intentional action and practice knowledge of participants but also by circumstances and conditions, which are 'external' to them. These conditions and circumstances include, first, *practice architectures* which prefigure and pre-form the sayings, doings and relating of their practice; second, *metapractices* that create conditions under which participants' practices can be carried out; and, third, *ecologies of practice* in which different kinds of human-social projects and different kinds of subsidiary practices connect up with one another in ecological relationships that sustain whole complexes of practices like education in schools, for example, or different kinds of sustainable or unsustainable farming practices, or different kinds of practices of primary health care.

From the practitioner perspective, these webs of practice are *situated* in the particular circumstances and conditions of particular *sites* – in what Schatzki (2003, 2005, 2006) calls *site ontologies*. What we see is that practitioners are *co-habitants* of sites along with other people, other species and other objects, and that they are in interdependent relationships with these others, not only in terms of maintaining their own being and identities, but also *in and through their practices*. Indeed, as Schatzki (2002, in the title of the book) insists, practices are “the site of the social” – where people and other things meet and interact with one another.

A first step in the development of Schatzki's practice theory (1996) was his exploration of the intuition that practices are a kind of concrete embodiment of Wittgensteinian (1974) language-games and forms of life – that is, the notion that the 'sayings' and 'doings' (and 'relatings') that constitute practices hang together in social life in the way words and ideas hang together in language-games in different kinds of discourses. A second step, taken in *The Site of the Social* (2002), was to demonstrate the power of this insight by interpreting large tracts of practice (Shaker herbal medicine production by the Shaker community of New Lebanon, New York, in the mid-nineteenth century, and day-trading on the contemporary Nasdaq market) in terms of this Wittgensteinian view, to show the way practices hang together so that they are comprehensible as practices of this or that distinctive kind.

Schatzki (2002, p.77) defines practices thus:

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...practices are organized nexuses of actions. This means that the doings and sayings composing them hang together. More specifically, the doings and sayings that compose a given practice are linked through (1) practical understandings, (2) rules, (3) a teleoaffective structure, and (4) general understandings. Together, the understandings, rules and teleoaffective structure that link the doings and sayings of a practice form its organization.

In the book, Schatzki presents philosophical arguments for his theory of practices, and he demonstrates, using the examples of Shaker herbal medicine production practices and Nasdaq day-trading, how practices hang together as “organized nexuses of actions”.

Summarising his notion of practice, he writes

In sum, a practice is a temporally evolving, open-ended set of doings and sayings linked by practical understandings, rules, teleoaffective structure and general understandings. It is important to emphasize that the organization of a practice describes the practice’s frontiers: A doing or saying belongs to a given practice if it expresses components of that practice’s organization. This delimitation of boundaries entails that practices can overlap (p.87).

The overall research program we have been describing aims to take Schatzki’s intuition that practices are “organized nexuses of actions” a small step further: to see practices like *education* and *teacher education*, or *teaching* and *learning*, not only as relatively passive “organised nexuses of actions” but *as living things* (or as *like living things*). Taking a lead from Schatzki’s notion that practices have “frontiers” that delimit them, we are exploring the notion that they are particular kinds of entities that come into existence in particular places (sites) at particular times, and that they exist in *ecological relationships* with one another and in whole ecosystems of interrelated practices.

The issue here concerns how *practices* themselves relate to one another, rather than *participants* in those practices. We are accustomed to thinking about the relationships between practices in terms of the relationships between the biological entities (people) who relate to one another in practices, but less familiar with thinking about the relationships between the practices themselves.

W.B. Yeats asked “How shall we know the dancer from the dance?” This is the question at stake here. If we think of the general ‘dance’ of teaching, or of the much more particular ‘dance’ of teaching children about the aspects of prose that authors use to entertain and engage a reader, then each is a ‘dance’ of a particular kind. Looking at practices as ‘dances’ in another way, one might see connections between the particular (teacher) ‘dance’ of preparing lessons to the (teacher and student) ‘dance’ of teaching them. One might also see the (school administrator’s) ‘dance’ of securing the budget and resources to buy Smart Boards as crucially connected to the ‘dance’ of classroom teaching with Smart Boards. In such ecological relationships between practices, one practice produces outcomes or products that are taken up in other practices. For example, if system administrators see that the use of Smart Boards in classrooms appears to coincide with an increase in students’ National Assessment Program in Literacy and Numeracy – NAPLAN – results, we might

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expect them to use these data in an argument for resources to buy more Smart Boards or other tools that might further increase NAPLAN scores.

We are exploring how practices link together with one another in ways that demonstrate interdependence, among other things. If they do, then it follows that in order to change practices it is probably necessary to change the patterns of dependence and entailment between different kinds and levels of practices in such 'ecologies of practice'. Our task at the moment, however, is to investigate whether it is plausible to see practices as (or as *like*) living things, and to see the relationships between practices (rather than between participants in those practices) as forming patterns of relationship that could reasonably be described as 'ecologies of practice'.

One thing that prompts us to proceed in this direction is the notion of *orchestration*. Kemmis & Mutton (2009) observed that practices and the particular sayings, doings and relatings that compose them are distributed in time and space, and across participants. Individual participants in the practices of Education for Sustainability (EfS) they studied did not, by themselves, have the capacity to generate the practice; they depended on others acting appropriately at appropriate times and places. The practice came together across time, places and participants in projects (Schatzki's 'teleoaffective structures') that orchestrated language use, activities and relationships between participants, and that orchestrated the particular and different contributions of different participants to the whole. That is, the practices themselves are distributed across time, places and participants, and hang together as distinctive practices by virtue of their being orchestrated.

This orchestration is not necessarily to be understood as orchestrated by a composer or a conductor. Following Schatzki, our intuition is that the orchestration occurs in the way *language games* hang together. In the process of orchestration, different participants orient themselves in relation to one another, in relation to utterances and ideas, in relation to states of affairs in the material world. Moreover, they orient themselves in relation to the process of *being orchestrated* – that is, they have long learned from experience (from infancy and perhaps before) how to enter social practices as games in which they find *meaning* in the semantic dimension and the medium of language, *continuity* or *survival* in the dimension of space-time and the medium of activity or work, and *solidarity* or *belonging* in the dimension of social space and the medium of power. Through this kind of orchestration, we submit, they acquire what Bourdieu (1977) describes as the *habitus* – the set of learned dispositions – that allows them to 'play the game' and 'have a feel for the game' in a field of practice. That is, children and adult participants in social life have long learned that participation in social practices yields them, as individuals, a sense of meaning, continuity and belonging, and a sense that they are part of a social fabric that can only be composed and engaged through social conduct – through the social *practices* – in which people connect with one another. And on this we agree with Schatzki: this latter realm *is* the realm of the social.

The notion of orchestration puts relationships in motion in time and space. It suggests something more, and more dynamical, than the statics of 'connection' or 'connectedness'. It suggests that practices are not guided by plans nor that they

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unfold according to pre-determined templates, but rather that they unfold through participating in the action in relation to others and the world. Practices are in motion, like language games, not static like a lexicon and a grammar which do not come to life until put into action – flexibly, uncertainly and forgivingly – by participants in the practice of language.

In our current research program, then, we are attempting to demonstrate that practices are in living ecological relationships with one another. At the moment, we are exploring whether they are in living ecological relationships by using a set of criteria derived from Fritjof Capra’s (1997, 2004, 2005) “principles of ecology, principles of sustainability, principles of community, or even the basic facts of life” (2005, p.23) which describe ecological relationships in terms of eight key concepts. In this research program, we are attempting to test whether (a) practices (by analogy with species) and (b) ecologies of practice (by analogy with ecosystems) meet each criterion. We use as a set of test cases the example of practices from the Education complex of metapractices (education, teacher education, educational policy and administration, and educational research and evaluation) as they appear in the school and systemic administration sites we are studying in a rural region in New South Wales, Australia. In Table 2, we use these concepts to suggest ways in which practices might be regarded as living things that enter ecological relationships with one another.

Table 2: Capra’s principles of ecology as criteria for determining whether practices and ecologies of practice are living systems

Concept	If ecologies of practice are living systems, then
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 practice 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 ecology of practices (understood as an ecosystem), and the sustainability of this 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 (which is in fact a cycle in which the predators at the top of the food chain die and are eaten by creatures further down).</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</i>

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	<i>into chemical energy by photosynthesis) and eventually being dissipated (as heat is lost from the bodies of living creatures).</i>
Development	<i>Practices would develop through stages, and ecology of practice would also develop through stages.</i>
Dynamic balance	<i>An ecology of practice 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.</i>

In the following sections, we show how these concepts seem to apply to practices understood as relating to one another in the kinds of living systems we are describing as ‘ecologies of practice’.

Networks

Different practices would derive their essential properties and their existence from their relationships with other practices.

The metapractices of leadership, professional development and professional learning, teaching and learning are connected to one another in the web of practices observed across the sites we are studying. Outcomes of practices at one site (for example, more collaborative practices by members of the CSO) connect with practices at another site (the development of collaborative management teams within schools, for example, and collaborative practices of teachers and students). The collaborative practices of the CSO’s ‘Teachers as Leaders’ professional development program, for example, has influenced the conduct of a Religious Education program. The ‘Teachers as Leaders’ program requires teachers to observe others’ classroom practice and to be observed by them. This is experienced as threatening by some teachers – that the threat seems real is evidence of interconnection between these practice domains.

I think that when we’re talking about, say our learning framework and what it is that’s important, we would expect that the way in which adults learn, the way in which adults best learn, is also the way in which our students best learn. So if our adults are learning in a collaborative way, if they are communicating with each other effectively, if they, using an enquiry base to their learning, if they, I know there’s probably some debate about this, but if they use as constructivist approach to their learning, and then that’s, and they find that effective, we expect that that is what our students would find effective as well. (Catholic Schools Office senior consultant)

Our huge focus is not just academic but social ... (it) ... is thinking levels which ... (member of school executive team)... would be the leading practitioner in the classes and whilst we drive that thinking in all our staff meetings so when you say what are our PD days our PD is ongoing (Principal)... that’s the goal in saying that it’s still the goal so we try to really think about placements of teachers who have real strengths with teachers who need to be supported on the way etc. so that at least by our senior primary classes we see it reflected in the way our kids work (Principal, Catholic primary school).

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Nested systems

Different levels and networks of practice would be nested within one another.

There is a relationship of ‘being nested’ between policy and leadership, for example, in the way they appear to embrace and include the things they name – procedures for work in schools and by teachers, for example. There are other forms of nesting, however – from large scales of activity to lower levels of activity – for example, in a major project like the ‘Teacher Leader’ project, from overall development activities to specific activities for particular days. Particular cases of collaborative learning in groups are also nested within higher level developmental work with students – for example the ‘Habits of Mind’ or ‘Inquiry Approach’ practices run across a range of particular activities where they are made explicit and exercised by students. Learning how authors engage readers also takes place as a specific activity nested within a literacy program and specific work on text types and features.

It is striking to us as researchers that certain ideas about ‘learning communities’ have flowed into the language of students and teachers from the language of the CSO officers working with schools – ideas about inclusive relationships, for example.

(We ... (Kindergarten team of teachers) ... started this term on ‘I-messages ... we decided that we would talk to the children each day about how things were going on the playground for them...(so the children) ... just really basically shared who they played with or that they’d had friends to play with and how they felt and how people treated them. So you know, I played with Mary, and we played nicely. And then they started talking about well, I’d say to them well why do you think you were so happy, why did the games go so well? And one of the girls would say well because we took turns, I had a turn and then she had a turn and we shared. So that language coming out about what good play looks like ...(Catholic primary school teacher)

Interdependence

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 ecology of practices (understood as an ecosystem), and the sustainability of this ecology of practices would be dependent upon its relationships with other ecologies.

It is a major undertaking in the schools we are studying to change the professional ethos and practices of a whole Diocese. The notion of ‘Professional Learning Communities’ elaborated in six principles is intended to have application across a range of sites and types of practices. The outcomes of the CSO-based change process aimed at changing the practices of CSO Education Officers visiting schools, for example, is intended to link with changed ways they work with schools, and changed ways principals, School Executives, teachers and students work with one another. The practices are seen as, and intended to be, interdependent – though it is not yet clear how widely they are secured.

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(A) fairly significant project we had going, that I'm sort of involved with and facilitating, co-constructing actually with a group of teachers, is, and the entry point was having a teacher professional learning plan for every teacher, however, through co-construction, we have, the plan is a minor result, it's minor evidence, we have a 3 tier process, where we, teachers will engage in self reflection and they've got 8 options, for their self reflection, and the self reflection is getting them ready for their professional conversation, and again, we've got a fair few scaffolds, ... scaffolds to utilize there, from the complex ones to really simple ones. And then the final thing is actually having a professional learning plan and it's intrinsically accountable, it's not extrinsic, it doesn't need to be handed to a supervisor, they all do it peer to peer ... (Catholic Schools Office senior consultant)

Diversity

An ecology of practices would include many different practices with partially overlapping ecological functions that can partially replace one another.

The notion of 'learning communities' is evidenced in different ways in different sites and in different kinds of activities. Different teachers in different classrooms realise the new ways of operating in different ways, and they do so differently in different schools, subjects and units of work. There is also diversity among the metapractices of leadership, professional learning, teaching and learning in the ways they take up a notion like 'learning community', with a certain elasticity of practice that permits adaptation to circumstance along with expanding adoption, and allowing a kind of consistency of message to be reflected in a variety of ways of realising the common intention.

(In regard to the six practices)... the meaningful learning collaboration enquiry ... we do a lot, as a staff initially, we did a lot, didn't we? Again in staff meetings and that type of thing. We didn't do as much explicit teaching about that in the classroom with kinder, using that same language. It was more in kinder friendly language. Whereas the habits we were went with the language, and because it's going to be ongoing through the years. And we felt that would have been easier for them to understand (Teacher, primary Catholic School).

Cycles

It would be possible to observe some kind of matter cycling through practices – for example, as in a food chain (which is in fact a cycle in which the predators at the top of the food chain die and are eaten by creatures further down).

There are many kinds of cycles to be observed in the metapractices. There are cycles of cultural and discursive reproduction, for example, where the practise of a practice enhances the capacity of participants to practise those practices in future. There are also cycles in which a practice like the practices of learning communities (especially, perhaps, the relatings characteristic of community) feed into (and are fed by) practices (and relatings) of religious community for this Catholic Diocese.

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But even if you boil down the ethos of a Catholic school, it's what we teach in our classrooms which is, getting you to set up your class rules at the start of the year, we set up ... any class norms, and norms are just normal behaviour, you know, what you expect people to do, normally day in, day out, and, that's what runs across through the staff, we treat each other normally, you know, yeah, and what you expect from people, there's compassion, there's you know, a lot of sharing the love around here, you know, but it's not necessarily catholic, it's just normal human behaviour, and that's the beautiful thing, that, strangely enough there's a lot of normal people out there, out there, you know, the staff, so it just makes for good practice, good teaching and a great school community too, we don't have, I mean, we're a small school, we don't have discipline problems, hardly at all, you know, it just boils down to the way we all work together (Catholic primary school teacher).

I would say that there is an ongoing priority around literacy and numeracy. I would say that there is also a parallel priority around catholic life, given that if we didn't make that a priority our system would have no reason to exist, neither would our schools, it's what makes us different (Catholic Schools Office senior consultant).

Flows

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 being dissipated (as heat is lost from the bodies of living creatures).

We are exploring the contentious proposition that three kinds of 'energy' flow through practices: *meaning* in the semantic dimension and the medium of language, *survival* (in the dimension of material space-time and in the medium of activity or work) and *solidarity* or *belonging* energising practices in the dimension of social space and the medium of power.

It is clear that energy flows through the biological being of the participants in the practices we are studying – they take energy in the form of food, and expend it in heat lost from their bodies, for example. This is different from the energy flowing through *practices*, however.

It is clear that *meaning* flows through the various interconnected practices and metapractices we are observing – the ideas of 'learning community' and 'reflective dialogue', for example, that must be relayed and reconstructed in every use of the ideas by participants. For participants, this is to participate in the *language games* of 'learning community' or 'reflective dialogue' – that is, discovering connections between ways of doing things and relating to others who are similarly oriented to the world in and by language. This is not to say, however, that contradictory or opposed notions (for example notions of hierarchy in the relations between staff, or, more obviously, between teachers and students) do not continue to orient thinking and associated ways of acting and relating in the settings we are studying.

Survival means that practices continue to exist over time, and that they are reproduced on subsequent occasions – as we see in the patterns of activity of

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students using the Smart Boards in their classrooms, for example. These patterns of activity are reproduced (with variation and development) over time, as we saw in the case of the students learning more sophisticated uses of the Smart Boards in their classrooms.

Solidarity or belonging flows through the practices as participants connect with one another in and through the activities (doings) composing the practice. They build interdependencies on one another as others expected to do particular things in response to the actions of others as an activity unfolds. Thus, social reproduction occurs through the practices of group work we observe, and, in particular, very deliberate and explicit practices of *including others* in group work that we observed among teachers and among students. (The opposite of *solidarity* is also reproduced in certain kinds of relationships we observed – teacher resistance and reluctance to the explicit requirement for ‘de-privatisation of classrooms’, for example – that is, the resistance is itself a form of negative solidarity with other opponents of the new ‘regime’.)

In a school like ... (X) ... in each of the classrooms, the teachers actively work towards building those groupings of students as a learning community, and that involves, whilst I talked about explicit teaching, there is a time for that, but there are many modes of learning, which students learn from one another, and so they learn to reflect with one another, they learn to work in pairs, in groups, so a variety of strategies that give them opportunities to improve without necessarily, you know, it's not the student going to the teacher all the time ... and you'll see in some of the classrooms, around the school, that there are prompts or reminders or those sorts of things, which assist students ... there's lots of things, so there's reminders around for students, you know, before they come up to the teacher. Have you been and reflected with a friend, have you re-read your work and looked for the following things. So there will be some of those practices and that will be at varying levels of success or, I suppose visibility, depending, there would be, I'll be honest ... there would be probably a couple of classrooms where you wouldn't see it as obviously because in those classrooms the teachers' ability to be able to, or their paradigm about the way in which students learn, perhaps has not come as far as others ... (Catholic Schools Office senior consultant)

Development

Practices would develop through stages, and ecology of practice would also develop through stages.

In the cases we are studying, the practices of ‘learning communities’ are developing as the ideas, activities and relationships characteristic of these communities flow between the CSO and the schools, and between the people in each of these sites (chiefly system administrators and officers, school principals and school executives, teachers and students). It appears that the notion of ‘professional learning communities’ was articulated as a focus for professional learning and leadership five or six years ago in this Diocese, and that as it has been elaborated and developed it has also cascaded out from the CSO to the schools, and from CSO officers to principals, teachers and students, via a range of professional

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development/ professional learning programs (like the 'Teachers as Leaders' program now being rolled out in the Diocese). For example, it appears that some of the orchestrated practices of students and teachers (like the 'Habits of Mind' program in one school and the use of Smart Boards in another) have developed and evolved more fully to realise the six principles of professional (and student) learning advocated by the Diocese. Not only are the individual practices in leadership, professional learning, teaching and student learning developing more fully to realise the six principles, but the overall orchestration of leadership, professional learning, teaching and student learning in the relationships between the CSO and the schools is developing – that is, there appears to be a new kind of ethos and new kinds of practice in the interconnected practices of the CSO and the schools. If this is so, then it might be said that an ecology of practice is developing.

I think as an executive we will talk about our history as in being in the last 5 years and what we've tried to create in this school. Our starting point was deciding what our pedagogy was. Now whilst a few staff members had some understanding of learning community philosophy we've spent 5 years really trying to depth that and build that. I would like that we're maybe 60% there I think in common understandings and agreed practices. We started a long time ago talking about learning communities based on Joan Dalton's work and that's really becoming the focus that now we try to align everything to ... (Principal, Catholic Primary School)

Dynamic balance

An ecology of practice 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.

Self-regulation appears to be evident in the spread of the 'learning communities' notion across CSO and school sites in the Diocesan system and schools we are studying. The six principles are vigorously advocated by CSO Education Consultants and the Education Officers, with respect to the activities and processes within the offices and among the officers of the CSO, with respect to the ways Consultants and Officers are expected to conduct themselves in relation to schools, and within schools (among teachers and in relation to students). As the metapractices of educational policy and administration, professional development/ professional learning, teaching and student learning develop in terms of the six principles, each metapractice seems to exert an influence on the others, supporting the shift from former more hierarchical relationships to new forms of collaborative relationships. Moreover, these patterns of mutual influence between the metapractices are reinforced by more communitarian ideas about Catholic life that are reflected in the notion of 'learning communities' in the CSO.

It follows from these comments that a second feature of the dynamic balance apparent in the system is that the metapractices are to some extent able to support one another and replace each other's functions. Adoption of the principles is mutually reinforcing across the metapractices of educational policy and

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administration, professional development/ professional learning, teaching and student learning. For example, advances in one metapractice like the development of learning communities in school-based professional development activities influence the take-up of the principles in other metapractices – like the ‘Teacher Professional Learning Plans’ initiative, which some teachers have greeted with suspicion but others see as a further and probably legitimate extension of the six principles into the management of teacher performance.

(We see ourselves as providing not in-service to schools, but a leadership to schools, in the ways in which you can, it can enhance effective pedagogy ... this office has looked at the way in which professional practice takes place ... we've tried to model and promote communities where reflection is considered a vital aspect of teacher practice, and that's around the whole notion of learning from colleagues, and learning from one another ... So, we work on a model of trying to de-privatise those classrooms and actually have teachers learning from one another, sharing with one another ...for instance, rather than the principal running the staff meeting, and the teachers all just listening, we suggest methods like, rotating the staff ... around each of the different classrooms, and the teacher of that classroom chairing the meeting, principal just getting a principals report, and it's honouring the workspace that others work in, in terms of people saying, oh, I didn't know you were doing this, and gee, your room looks good, what are the kids doing here, sharing ... so that those meeting times can actually be used for substantive dialogue, around, what is our core purpose, how do students in this school learn, what are we trying to do, what is our focus ... in that way you can see the transference of peoples learning, and it starts to develop and become part of the culture of a school community (Catholic Schools Office senior consultant).

Our research program, then, is striving to show that practices are living things, or that they behave like living things, and that they are situated within ecologies of practice that are sustainable (or not sustainable) because of their relationships of interdependence with other practices in an ecology of practices that exists in a particular site. As the foregoing sections suggest, the evidence from our case study data can be interpreted in ways that make this proposition plausible.

CONCLUSION

In this paper, we have tried to show that practices are, to use Schatzki's (2002, p.77) phrase, “organised nexuses of actions” that hold participants together and *orchestrate* them in relation to one another

- in their use of language within particular patterns and arrangements of discourse (in the dimension of semantic space),
- in their actions within particular patterns and arrangements of activities (in the dimension of physical space-time), and
- in their connections with one another within particular patterns and arrangements of relationships (in the dimension of social space).

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We have sought to show not only that practices are “organised nexuses of actions”, but also something more. We have suggested that *practices should be understood as living entities*. It follows from this view that distinctive practices must be understood as existing in ‘*ecologies of practice*’ in which particular practices are in interdependent relationships with other practices which sustain and support them. Using Fritjof Capra’s (2005) “principles of ecology”, we have sought to show that practices relate to one another in

- (1) *networks* in which particular distinctive practices derive their principal properties from their relationships with other practices;
- (2) *nested systems* in which different levels and networks of practice are nested within one another;
- (3) *interdependent relations between practices* in which different practices and ecologies of practice are essential to one another’s survival;
- (4) ways characterised by *diversity*, such that different practices have partially overlapping ecological functions that can partially replace one another;
- (5) *cycles*, in which different kinds of matter cycle through practices and ecologies of practice (as in a food chain, for example);
- (6) *flows* of energy through practices and ecologies of practice (we suggested that novel kinds of energy flow through practices: [a] *meaning* in the semantic dimension, [b] *existence* and *survival* in the dimension of physical space-time, and [c] *solidarity* or *belonging* in the social dimension);
- (7) *development* in which particular distinctive practices and ecologies of practice develop through stages; and
- (8) *dynamic balance* in which practices and ecologies of practice regulate themselves through processes of self-regulation to maintain continuity and survival in relation to inside and outside pressures.

These are bold claims. Nevertheless, we believe we can reasonably and plausibly interpret our field data exploring interrelated practices of *educational leadership, professional development/ professional learning, teaching and students’ social and academic practices* in a particular related set of school and local administrative sites (a particular group of *site ontologies*) using these eight principles of ecology. Is this because we *want to see* these relationships between practices, or because the relationships *are there*? We have not yet done enough analysis to demonstrate unequivocally that practices are in some sense *bounded as entities that exist in relationships with other bounded entities*, let alone that practices are *living entities* in the sense implied by Capra’s principles of ecology, but our initial analysis encourages us to believe that the distinctive practices we are studying (educational leadership, professional learning, teaching and learning) are indeed living entities that exist in ecological relationships with one another.

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