

Chapter 2

Developing a Multi-Layered System of Distributed Expertise: What does Cultural Historical Theory Bring to Understandings of Workplace Learning in School-University Partnerships?

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Introduction

Teaching is difficult and learning to teach in the public arena of classrooms is extraordinarily difficult. There is no safety net for the pre-service teacher, no opportunity to be tentative, and huge risk of witnessed failure. Not the least of the flaws in an apprenticeship model of teacher education, as currently seen, is that pre-service teachers very rarely work alongside more expert professionals while attempting to teach in classrooms (Edwards and Collison 1996; Edwards and Protheroe 2003, 2004). One may then wonder whether teacher education would be better described as workplace performance rather than workplace learning.

In England, the development of a coherent response to these flaws has been inhibited by a discourse marked by aggression and defensiveness. The aggression has come from those involved in teacher education policy who point to the weaknesses of a model of professional learning which, they wrongly believe, relies on the simple application of research-based knowledge to practices by those who are novices in the practices. The defensiveness comes from university-based teacher educators who are doing all they can to ensure that learning through participation in school practices aligns with training expectations such as achieving the standards needed for qualification (Ellis et al. 2012). The battle-lines were drawn over 20 years ago (DfE 1992, 1993), and skirmishes between teacher educators and policy-makers have continued with almost every new Secretary of State for Education ever since.

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In part the impasse has arisen because the pre-service teacher education university-school partnership arrangements set up in the early 1990s happened too rapidly, without a fundamental questioning of whether the existing institutional structures were fit for the new purposes. Consequently, even the most robust partnerships can resemble marriages of convenience that are politely held together without any fundamental questioning of their bases. The recent Work of Teacher Education study (Ellis et al. 2012, under review) has shown that the paper over the cracks in the partnerships that were established in the early 1990s—and which were described in the 1990s Modes of Teacher Education study (Furlong et al. 2000)—is wearing thin. Meanwhile, the only alternative to these kinds of partnership that is available in public discourse is the self-improving school system (Hargreaves 2011), which has little place for university involvement. We therefore suggest that it is time to pick up the challenge that should have been given to university-based English teacher educators in 1992, and examine how we might help build learning environments that draw on the strengths of both universities and schools to create thinking, decision-making professionals.

To that end we are currently, with local schools, developing what we are describing ambitiously as a multi-layered system of distributed expertise and a new version of partnership. The layers are research, continuing professional learning and pre-service teacher education; and the expertise is that to be found both in schools and across the university. One of the origins of the initiative lies in Burn, Childs and McNicholl's delving into the black box into which pre-service teachers disappear when on school practice (Burn et al. 2007; Childs et al. in press). In the process they uncovered what and how pre-service teachers learned while interacting with teachers in humanities and science departments, in what Britzman describes as behind-the-scenes work (Britzman 1986). Their studies have revealed a hitherto hidden, but fascinating, picture of the pedagogic expertise that was distributed across some of the departments, and how the pre-service teachers in those departments were, at times, able to recognise, draw on it and contribute to it. It therefore made sense to us to increase opportunities for university-based staff to enter, and perhaps enrich, those conversations to strengthen the learning opportunities available to pre-service teachers and those who support them. At the same time, closer links with practices in schools would allow the pedagogic research undertaken by university-based colleagues to be more strongly connected with the purposes and anticipations of practitioners (Edwards et al. 2007).

Stimulated by that research, and our consequent intention to work even more closely with schools, we have begun to reconceptualise pre-service teacher education in what we are calling an Education Deanery, and are drawing on a strong theory of learning to do so. The theory is the configuration of approaches that gather under the label of 'cultural historical' understandings of learning and practice, which draw their inspiration from Vygotsky's research in Moscow in the 1920s and early 1930s. At their core is the recognition of a dialectic between learner and learning environment: we are shaped by the practices we inhabit, but also shape them. But this is no simple notion of person-context interaction. These dialectical relationships stretch, as Lave puts it, 'among semiotic systems, social structure and political economy'

Table 2.1 Planes of analysis (after Hedegaard 2012)

Entity	Process	Dynamic
Society	Political economy	Societal needs/conditions
Institution	Practice	Values/motives/objectives
Activity setting	Activity/situation (with potential for individual learning)	Motivation/demands
Person	Actions (learning arising from individual engagement in the activity)	Motive/intentions

(Lave 1988, p. 187). The re-thinking is therefore radical, and we hope far more productive than the skirmishes that have shaped teacher education of late.

Lave’s cultural analysis arose from her study of cognition in everyday practices, where she observed that cognition is ‘distributed—stretched over, not divided among—mind, body, activity and culturally organized settings (which include other actors)’ (Lave 1988, p. 1). The argument underpinning the multi-layered system of distributed expertise that we are to discuss, is that interventions to enhance pre-service teachers’ learning should be at the level of workplace practice. We also recognise that intervening and reshaping practices cannot be done independently of broader institutional concerns, therefore connections need to be based on the mutual aligning of at least some institutional purposes across organisational boundaries. Indeed, because of the intertwining of semiotic systems, social structure and political economy, any intervention may have a better chance of success if it occurs when social structures and political economies are being disrupted.

Current Disturbances and Disruptions in Teacher Education

Hedegaard’s modelling of the relationships between societal purposes and values, institutional practices, activities in activity settings and personal actions helps explain the importance of timing. Like Lave, Hedegaard has taken a cultural analysis as her starting point and recognises the need to capture the connections and discrepancies in these relationships. Also like Lave, her focus is practices and how people think and act in the activities that constitute them. What she adds to Lave’s analysis is a strong focus on motives at the analytic levels of society, institution, activity setting and person.

Table 2.1 is a slight adaptation of the analytic heuristic Hedegaard offers for studying children’s learning within different practices. We suggest that it is an equally useful heuristic for examining pre-service teachers’ workplace learning and considering when, where, how and why changes in the infrastructure of teacher education should occur. The responses to these questions are, of course, interlinked. For example, we may argue that we need changes in institutional practices to place *strong outcomes for pre-service teacher education* as a core value for schools so that school practices are, in part, shaped by the motive of creating the next generation of practitioners.

But, as Table 2.1 indicates, unless societal conditions are conducive to these motives, placing pre-service teacher education centrally in school practices may be experienced as going against the grain.

Relevant changes at the societal level are currently happening. Boundaries around schools are being disrupted to encourage school leaders to think systemically about professional learning and capacity building. Recently, policy-makers have consistently pointed to the apparent advantages of school-based routes into teaching. Michael Gove, the English Secretary of State for Education, bases his argument for school-based teacher education on the belief that:

Teaching is a craft and it is best learnt as an apprentice observing a master craftsman or woman. Watching others, and being rigorously observed yourself as you develop, is the best route to acquiring mastery in the classroom. (Gove 2010)

Though, as we have observed, that kind of classroom-centred apprenticeship rarely happens.

In November 2011, the English government's teacher education implementation plan—'Training our Next Generation of Outstanding Teachers' (DfE 2011)—outlined how the shift to school-led, school-based teacher education would be achieved. School Direct is a new route into teaching which allows schools to select their own trainees and employ them at the end of the one-year training. School Direct (salaried) has also been introduced to replace an earlier, also salaried, Graduate Training Programme. Alongside School Direct, a network of Teaching Schools is being created with a focus on continuing professional learning. The intention is that it 'will lead the school system in training and developing outstanding teachers' (DfE 2011, p. 12). The implementation plan indicates that there will be 100 Teaching Schools in 2011/2012, rising to '500 schools and their alliances by 2014/2015' (ibid.: 12). The DfE website describes them as follows:

Teaching schools give outstanding schools a leading role in the training and professional development of teachers, support staff and head teachers, as well as contributing to the raising of standards through school-to-school support. (DfE website: www.education.gov.uk/nationalcollege/index/support-for-schools/teachingschools.htm).

The government is locating responsibilities for continuing professional learning in collaborations between Teaching Schools and academies. Nick Gibb, a recent Minister for Schools, explained the vision as follows:

[b]y encouraging school-led professional development, we believe schools can strengthen the bonds that exist between them and allow for more opportunities for teachers and schools to collaborate with each other. So, more freedom, more and better professional development, and more collaboration. (Gibb 2011a)

The involvement of universities, professional associations and other bodies, currently involved in continuing professional learning in England, appears limited. Gibb (2011b) elaborated on the kinds of collaborations to be emulated:

Many schools in the independent sector have already established successful partnerships with neighbouring institutions through the Independent State School Partnership scheme. And we want that sort of collaboration to continue through the new national network of

Teaching Schools; our Education Endowment Fund; and the National and Local Leaders of Education programme. (Gibb 2011b)

We agree that systemic approaches to teachers' professional learning are worthwhile, but can be limited by a reliance on what Huberman described as closed collective cycles, where the same knowledge is merely recycled (Huberman 1995). We are also concerned that the versions of systemic change we have briefly outlined are not premised on an understanding of the practices that comprise the systems of schooling, or how learning occurs in them. In the context of the policy churn that is reshaping the conditions of teachers' professional learning, (the first row under the headings in Table 2.1), we shall attempt to make visible the part to be played by university-based partners in workplace elements of pre-service teacher education.

Starting with Practices

The 'why' and 'how' of pre-service teachers' learning, within a broad notion of a locally collaborating education system, is a major strand in our discussion. Pursuing it has involved examining the semiotics of the situations in which pre-service teachers learn and the discursive environments that are conducive to learning. Our way into the why and how of teachers' learning is a conceptual analysis of what happens in the activities that appear to promote learning, and which are part of the institutional practices that teachers, at all stages of their career, inhabit. From that analysis we shall present evidence from studies we have undertaken to examine how university-school relationships may be reconfigured within a more systemic notion of teachers' professional learning.

Let us therefore start by clarifying how, with reference to Table 2.1, we are using the term practice. One of us has elsewhere described practices as '... [h]istorically accumulated, knowledge-laden, emotionally freighted and given direction by what is valued by those who inhabit them' (Edwards 2010, p. 5). Institutions, like schools and families, are made up of practices which value some knowledge over others, help shape identities and sense of belonging, and have purposes such as good examination results or being politically aware. What matters, i.e. the knowledge, values and motives in these practices, are made visible in the activities that take place within them, such as a teacher's planning meeting or a family's conversation over breakfast. The actions that occur during these activities give insight into the purposes of the activities, and in turn those of the institutional practices. The semiotics of the particular situation therefore open up the wider practice for scrutiny (Mäkitalo 2003, 2006).

Our concern is not simply to observe and report, but to consider how learning might be enabled, as people engage in activities in workplace practices. Cultural historical theory can help here. Vygotsky's learner is agentic in an important way: she or he works on and with what Vygotsky described as the social situation of their development. Writing of the social situation of development in the terms of children and their learning, Vygotsky described it as '[a] system of relations between a child of a given age and social reality' (Vygotsky 1998, p. 199). These relations

are built as a learner takes forward her or his intentions, but they are also shaped by the possibilities for interpretation and action in any setting. There is, therefore, a dynamic that is sustained over time in which the learner engages in activities and creates and recreates his or her relationship with the practices in which the activities are located. Van Huizen, van Oers and Wubbels, in their analyses of a Vygotskian teacher education, refer to Leont'ev's notion of that relationship as a 'middle link' which mediates the 'connection of subject and world' (van Huizen et al. 2005, p. 271), and point to how the link positions person and practices as mutually constituting.

The dynamic tension between the agency of the learner and the affordances of the practice, as played out in each activity, is where learning occurs. The intentional agency of the beginning teacher needs to be sustained if she or he is to work on and with the system of relations they are building within school practices; whether practices are conducive to the exercise of that agency therefore becomes a crucial concern. We have long known from studies of early child development (Lewis and Brooks-Gunn 1979; Trevarthen 1977) that even young children are intentional and approach activities with the purpose of having an impact of some kind. Indeed, Vygotsky talked of learning as being a cycle of internalisation and externalisation, i.e. we not only take in, but act on what matters in our worlds.

But we should not downplay the part played by practices in this dynamic. Recently, Hedegaard has elaborated the cultural historical learning dialectic and argued that we should shift our attention from a primary focus on how development arises from a child's needs, and recognise more fundamentally the importance of the demands that practices make on learners (Hedegaard 2012). From this perspective the demands and affordances of practices, as recognised by the learner, become central to understanding learning. We suggest that, in teacher education, the practice which is making the demands on the pre-service teacher should be the practice of being a teacher; rather than the practice of being a student teacher. This suggestion is an important element in our case for rethinking pre-service teacher education partnerships. Our argument is that, in order to increase the demands on teachers and provoke and promote their learning, we need to attend to the demands that within-school practices make on them as teachers who are also learners. It then follows that interventions in school work practices, their demands and affordances, can be helpful in enabling social situations of development through which pre-service teachers can move forward in learning to be teachers.

As we have already indicated, pre-service teachers need to be receptive to the demands in practices, recognise and respond to them. At this point, cultural historical approaches to learning help us to see one of several possible roles for university-based teacher educators in preparing pre-service teachers for recognising and working with the resources for learning that are available to them in school practices. One of the main arguments against university-based teacher education has been the weak validity of notions of the application of university-acquired knowledge while working in schools (Hagger and McIntyre 2006). Researchers in the cultural historical field would agree with these criticisms, and would instead argue that we need to think more clearly in terms of peoples' transitions between settings (Beach 1999, 2001);

enabling pattern-seeking and recognition across settings (Greeno 1997, 2006) and developing an outward looking mind which is attuned to recognising the resources for action in a setting (Edwards et al. 2002). These alternative and compatible views of how knowledge moves and filters interpretations of the potential for action across the boundaries of settings, mean that university-based teacher educators need to prepare pre-service teachers for pattern-seeking and the use of the resources that will support their intentional actions when they make the transition from university to the workplace and back again. Teacher educators' familiarity with school practices is, we suggest, an essential pre-requisite for that role; and entering the black box of school practices is a fruitful way of gaining that familiarity.

In making the case for focusing on and intervening in school practices, we are therefore not suggesting that all teacher education should take place in schools. Indeed, we agree with Goodlad when he wrote of the role of teacher education in ratcheting up pre-service teachers' everyday understandings of what goes on in schools (Goodlad 1990). The Vygotskian cultural historical line adds to Goodlad's arguments with a particularly strong focus on the importance of language in refining everyday situated understandings so that they become more powerful and generalisable concepts that guide and regulate actions in activities.

Vygotsky, for example, argued that '[I]nternal regulation of goal-directed activity arises initially from external regulation' (Vygotsky 1999, p. 63), i.e. our actions become goal-directed and self-regulated through the use of language and the concepts carried in it. Recognising that, in the case of young children, the initial act takes place before the child knows how to describe it and control it, he observes that '[t]he act is usually overvalued to the detriment of the word' (ibid: 65). For Vygotsky, language is the primary tool with which we can regulate our relations with the practices we inhabit and create a productive social situation of development. He went on to argue that the effective use of language as a tool for regulating intentional action requires the ability to abstract from situations in order to begin to generalise and make meaning. It follows from this analysis of language and self-regulation that teacher education needs to include the opportunity for abstraction, for pattern-seeking and for looking beyond experiences of the everyday situated practices which the novice is navigating and trying to make sense of.

But, we suggest, it also needs to do more than that. It needs, as Goodlad also observed, to make visible and hold up for scrutiny the motives and values that shape the professional practices of teachers. As Vygotsky explained, '[t]he sense of the words is changed by the motive' (Vygotsky 1997, p. 136), i.e. by the orientation that we take to the phenomenon under discussion and our intentions in working with it. By understanding the motive, the 'why' of practice, scrutinising the purposes of our actions and those of others, we can achieve a conceptual distance that allows for self-regulation and purposeful action. It is not easy to do this and our experience as teacher educators over decades has demonstrated that beginning teachers need help in achieving that distance.

More recently, Wertsch has suggested to us that the explicit form of mediation we have just described, in terms of guided and demanding reflection on practices, is only one of the ways that learners are introduced to what is valued in a practice.

He proposes that we should attend also to what he calls ‘implicit’ mediation. He describes it in the following way:

‘[i]t is part of an already ongoing communicative stream that is brought into contact with other forms of action’ and it involves ‘signs, especially natural language . . . (which) are not purposefully introduced into human action, and they do not initially emerge for the purpose of organizing it. Instead, they are part of a preexisting, independent stream of communicative action that becomes integrated with other forms of goal directed behaviour.’ (Wertsch 2007, pp. 180–181)

Wertsch’s signalling of the potential mediational power of everyday talk in activities returns us once more to the importance of teacher educators’ engagement with the everyday practices of schools. As we hope is already clear, we are not suggesting, as Wertsch appears to be doing, that simple immersion in the communication stream will lead to learning to be an informed teacher. We would instead agree with Derry’s critique of Wertsch, that being part of the flow of everyday communication is not enough to guarantee learning. Derry’s argument is that learning occurs best when learners are involved in making judgements which are tested within a system of inferences that constitutes the meaning systems they are engaging with.

[a] Vygotskian approach doesn’t depend simply on individuals being placed in the required environment where they discover meaning for themselves. The learning environment must be designed and cannot rely on the spontaneous response to an environment which is not constructed according to, or involves, some clearly worked out conceptual framework. For Vygotsky concepts depend for their meaning on the system of judgements (inferences) within which they are disclosed. (Derry 2008, pp. 60–61)

Drawing on Brandom (1994, 2000), Derry suggests that making claims and asking for reasons enables learners to access the meaning making that is valued in the discourse in which they are participating. Her explanation of Vygotsky’s concern with learning as a growing understanding of the inferences that comprise currently accepted meaning, not only has strong implications for how pupils are engaged as learners; it also connects with our argument for stronger teacher education engagement in the practices of schooling. That engagement, we suggest, has the potential to enable specialist teacher educators to weave research-based knowledge into the ongoing communicative stream to be found in schools and departments, and to sustain ways of interacting that privilege the making of claims and the asking for and giving of reasons.

Our analyses therefore lead us to proposing a dual strand approach to pre-service teacher education. The approach requires specialist teacher educators to hold fast to their role in guided reflection and abstraction from the everyday; but also to reframe how they work in schools to support teacher education more broadly. It is the latter that is the focus of what follows in this chapter. Our premise for a broadly systemic approach to teacher education and professional learning is that the values and motives that shape the practices of university-based teacher education and school-based teaching differ little. Indeed the proponents of transferring all teacher education to schools would agree, and suggest therefore that specialist university-based teacher education is unnecessary. That is not our argument; instead we suggest that working with similar ‘whys’ is a strength which enables alignments of institutional purposes.

These alignments mean that interventions in practices are able to go with the grain of school purposes, while at the same time offering moments of disruption that raise questions and open up language and intentions to scrutiny.

Sustained attention to the ‘why’ of teaching and therefore teacher education is, we believe, central to recognising teaching as a profession. Evetts, writing generally about the public sector professions, distinguishes between organisational professionalism and occupational professionalism, with the former orientated to monitoring and controlling professional work and the latter led by the professions, knowledge, values, relationships (Evetts 2009). We suggest that weaving these aspects of professionalism into the system of relationships that are created between the beginning teacher and the reality of the workplace is one of the crucial roles of the professional teacher educator.

This analysis has focused on pre-service teacher education, but also runs right through the multi-layered system of distributed expertise that we are currently developing, informing the development of continuing professional learning and research relationships as well. Van Huizen and his colleagues concluded their account of a Vygotskian perspective on teacher education with the following challenge.

Implementing a Vygotskian perspective on teacher education will put demands on the environment in which trainees will be training and teaching. . . . and with a view to implementation, the theoretical approach in this paper will need elaboration into a research programme centred on the relation between a pedagogy supporting the professional development of trainee teachers and the institutional conditions that have to be fulfilled for realizing such a pedagogy. (Van Huizen et al. 2005, p. 285)

In the rest of this chapter we discuss the first stages in a programme that aims at creating the institutional conditions for such a pedagogy.

The Evidence Base

The arguments we have made so far have been based on a cultural historical reading of what is required if we are to present a coherent response to some of the weaknesses in teacher education we indicated earlier. The evidence base we are drawing on in making these arguments is: a completed series of studies on the learning that occurs in humanities and science departments (Burn et al. 2007; McNicholl and Childs 2010); and an ongoing study of what teachers and teacher educators expect from the multi-layered system of distributed expertise that we are developing. In addition, we draw on evidence from two demonstration interventions: an intervention in a school science department where we are interweaving research, continuing professional learning and pre-service teacher education; and a series of action research based learning sets alongside teachers in schools which are part of our pre-service teacher education partnership. We first outline the Department Study and then the demonstration project that builds on it. We next describe the Deanery Implementation Research Project and summarise a demonstration project that is supporting that development. We then assess what we are learning from these initiatives in order to create the institutional

conditions for a pedagogy for teachers' professional learning that privileges teacher agency and continuous learning in the workplace.

The Department Study The data to be discussed in this chapter were gathered during one stage of a three-year departmentally funded study of interactions in science and humanities department staff rooms (Burn et al. 2007; Childs et al. in press). In the stage of the study under discussion, the first and third author spent two weeks in each of two secondary school science departments which had, over several years, proved to be particularly supportive to pre-service teacher learning. The initial aim was to identify the features of these workplaces that proved to be so conducive. The principal data collection methods were continuous participant observation in the science team room and semi-structured interviews with all department members. Departmental meetings and in-service training sessions were also observed. The researcher took descriptive notes of all conversations that occurred in the team room, at meetings and in training sessions. All interviews were recorded, with the permission of the teacher, and then transcribed. Analysis focused on how expertise in science teaching was made visible in teachers' conversations in which both explicit and implicit mediation took place. This talk made expertise accessible to pre-service teachers and to teachers who, as is typical in science departments, are required to teach topics not covered by their specialist subject knowledge.

The Demonstration Project: Internship development in a science department This innovation draws on earlier work by Ellis (2010), and places six science pre-service teachers—who are called interns in the programme in which they are enrolled—in one pre-service teacher education partnership school for the first two terms of their one-year PGCE programme. The need for the project arose from a shortage of places in schools for science pre-service teachers. An important feature is that the school and university collaborate on a small-scale research project in an area of priority for the school. The outcomes of the collaboration between teachers, pre-service teachers and university-based tutors are intended to meet the professional learning needs of the science department and enhance the research base of the initial teacher education partnership. Currently underway, evidence is being collected through regular focus group interviews with the six interns; two interviews with the six mentors and two teacher educators will be held over the course of the project. The interviews are exploring the purposes of the arrangement. There is also content analysis of documentation and interns' school-based research projects.

The Deanery Implementation Research Project This research study is funded by the charitable arm of Citigroup to examine what different stakeholders, university-based teacher educators, school colleagues, school students and university colleagues see as the purposes of tighter, more institutionally oriented links between schools and the university. It is currently underway, co-led by the second author. Here we draw only on data from university-based colleagues, i.e., departmental tutors and university administrators concerned with university-community links. Ten people in this group were interviewed using a schedule based in the analytic heuristic provided in Table 2.1. The schedule explored their motives for engaging with the Deanery and what they understood as the motives for others in their participation. The project has involved parallel interviews with three senior teachers in each of four partnership

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