Enacting change in classrooms: teachers' learning, enquiry tools and the role of the university in putting learning in to practice.

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Declaration

I declare that all the material which is not my own has, to the best of my ability, been acknowledged. The material in this thesis has not been submitted previously by the author for a degree at this or any other University.

Signed……………………………………………….

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Doctoral Statement

Section 1: The proposed basis for the award

This thesis looks at the ways in which teachers enact change in learning and teaching, how, in doing so, they draw upon internal and external resources and how they make use of tools to re-imagine the potential of each learning situation. It also looks at how this process is supported by collaborative work with university researchers, drawing upon a decade of my work as a researcher at Newcastle University and a range of different research projects across diverse sites of learning in England, from nurseries and primary and secondary schools, to Further Education colleges and community learning projects. These projects, funded by (amongst others) the Nuffield Foundation, The Learning and Skills Development Agency, the Campaign for Learning and UK government departments and agencies, were all focused on discrete questions and outcomes, with specific reports and papers as their outputs. What links them is my own experience of working as a researcher, the connections and questions that formed in my mind as I followed the funding from project to project. In this respect, the thesis is a reflection of one kind of professional learning by an academic researcher: in contrast to a single focused investigation, this work reflects the development of themes across contexts and cumulatively over time.

The professional life of the researcher is centred on the evaluation of change. Initiatives in pedagogy and curriculum are introduced either by central government or in response to local circumstances and my task as a researcher has been to co-construct with the change agents (teachers and other professionals, parents and learners) a sense of three things: what was supposed to change; whether or to what extent the change has occurred and finally to understand how it happened, looking at the potential for such change to translate to other contexts. In these respects, my career has had a unity and coherence, both in terms of the process of my work and of the goal: to shed light on learning and ways to improve learners' experiences. However, an explicit awareness of this core unity is disturbed by the realities of project work: limited funding and short timescales; the difficulty of designing projects to meet the competing agendas of practitioners and funders; the realities of university life and short term contracts for researchers which mean that projects are selected not because they support an emerging understanding of theory or practice but because they guarantee jobs for another six months. Moreover, the professional researcher is not mistress of her own fate but is reliant on a series of alliances with tenured academic staff. This can be blessing or curse – most alliances have elements of both – since the focus of a project must be negotiated, leading to increased complexity and a sense that one's work does not fit together and

the opportunities that working together bring for new ideas and perspectives, leading to a sense that increased complexity means that one's work *does* fit together. The work that I present here is the fruit of these alliances: to borrow from Stenhouse, I generated this knowledge *for* myself but not *by* myself.

The structure of this commentary is a necessary fiction which makes a much more coherent story than real life offered. I did not set out to know what I know now and at any given time I was only fleetingly aware of the underlying meaning of each piece of work in relation to all the others. In other words, in this commentary I am offering a narrative of discovery which is not a Quest but a reflection on a Voyage (Booker, 2004). I went without a map and was driven by the winds and the sea. This is what I learned while I was out there.

The thesis will elaborate on three main themes:

- **How I have come to understand the development of a 'change agent' identity :** looking at some of the affordances and constraints for innovative teachers working at the margins of their professional roles, working with parents and other professionals or exploring new perspectives on learning

- **How I have come to understand the scaffolding of the change process**: an investigation of the use of enquiry tools (Dewey, 1938) as epistemic objects (Knorr Cetina, 2001) which both enable teachers to enact change and to gain new perspectives on their practice as the change unfolds.

- **How I have come to understand the role that I have played in this**: a slow process of recognition, that I was an agent for creating space for teachers to engage with their questions, that I myself was part of a complex and contradictory system of university funding and objectives and that my navigation of this is important for our growing awareness of the interdependence of practitioner-university partnerships and 'working space' (Leat, 2006) for *all* participants.

The publications submitted with this commentary draw on both empirical research and systematic review to support a view of professional learning and change that takes account of learning theory, social and cultural context and the complexity of real classrooms. Throughout the text, these publications will be referenced with this notation **[1]**.

	Publications submitted in support of this thesis[1]	% contribution
1	Hall, E. (2009) *Engaging in and engaging with research: teacher enquiry and development* Teachers and Teaching, 15, 6 669-682	100
2	Baumfield, V., Hall, E., Higgins, S. and Wall, K. (2009) *Catalytic Tools: understanding the interaction of enquiry and feedback in teachers' learning* European Journal of Teacher Education 32, 4, 423-436	40
3	Baumfield, V., Hall, E. and Wall, K. (2008) *Action Research in the Classroom*. London: Sage	33
4	Baumfield, V., Hall, E., Wall, K. and Higgins, S. *Forming a Community of Inquiry: the practice of questioning in a school/university partnership* Paper presented at the American Educational Research Association Conference, New York, March 2008. Published by the School- University Partnership SIG at http://www.aera.net/Default.aspx?menu_id=362&id=4696	60
5	Higgins, S., Baumfield, V. and Hall, E. (2007) Learning skills and the development of learning capabilities London: EPPI- Centre. Available for download at http://eppi.ioe.ac.uk/cms/Default.aspx?tabid=1851	40
6	Hall, E. and Clark, J. (2007) Ghosts at the feast? The role of research centres in supporting innovative practice in local authorities. *Studies in Research Evaluation, Impact and Training*, **2**, 1-9	60
7	Hall, E., Leat, D., Wall, K., Higgins, S. E. and Edwards, G. (2006) Learning to Learn: Teacher Research in the Zone of Proximal Development. *Teacher Development,* 10, 2, 149-166.	60
8	Higgins, S., Hall, E., Baumfield, V. and Moseley, D. (2005) Thinking skills approaches to effective teaching and learning: what is the evidence for impact on learners? London: EPPI- Centre. Available for download at http://eppi.ioe.ac.uk/EPPIWebContent/reel/review_groups/thinking_skills/t_s_rv2/t_s_rv2.pdf	40
9	Hall, E. and Moseley, D. (2005) *Is there a role for learning styles in personalised education and training?* International Journal of Lifelong Education, 24, 3, 243-255	60
10	Hall, E., Wall, K., Higgins, S., Stephens, L., Pooley, I. and Welham, J. (2005) *Learning to Learn with parents: lessons from two research projects.* Improving Schools, 8, 2 179-191 Re-printed in Campbell, A. and Groundwater-Smith, S. (Eds.) (2010) *Action Research in Education.* London: Sage.	60
11	Hall, E. (2005) *'Joined-up working' between early years professionals and speech and language therapists: moving beyond 'normal' roles*. The Journal of Inter-professional Care, 19, 1, 11-21.	100
12	Hall, E. and Mroz, M. (2003) *Not Yet Identified: the knowledge, skills, and training needs of early years professionals in relation to children's speech and language development.* Early Years 23, 2, 117-130	50
13	Letts, C and Hall, E. (2003) *Exploring early years professionals ideas and practice: what do they know about speech and language development and impairment?.* Child Language Teaching and Therapy 19, 2 211-229	60
		763
	Full publication equivalent	7.6

[1] Forms detailing the agreed percentage allocation for jointly published work can be found in Appendix 1. Full publications can be found in Appendix 2.

The next section of this commentary will focus on the connection between the resources teachers draw upon and the capacity to enact change. **[1, 7].** The development of working space in which to do this is shaped by the professional and personal cultures in which teachers are embedded **[4, 6]** and it will be explored in this section. It will be contextualised by an understanding of the nature of approaches to learning **[8, 9]**, motivation (Apter, 2001) and professional careers (Day, *et al,* 2006); the ways in which teachers use their training **[12]** knowledge **[13]** and value systems **[11]**; in teachers' definitions of their professional roles **[11]** and in the quality of relationships – with learners, families **[10]** and other professionals **[11]**.

In the third section I focus on data from a specific project: an approach to professional learning and change **[1, 2, 4, 7, 10]**, grounded in systematic practitioner inquiry **[3]** (Stenhouse, 1981) and supported through a collaborative network **[4]** that has empowered teachers to think about their work differently, that has given them permission to work at the edges of their comfort zones **[1]** (Ecclestone, 2002) and which has created the potential for a different kind of engagement with professional and research discourse **[1]**. This project has developed a range of catalytic tools **[2]**, developed from our long engagement with Thinking Skills **[5, 8]** which have the capacity to develop different aspects of learners' thinking (Moseley, *et al*, 2005a, 2005b) while simultaneously exposing the micro-processes of learning to the attention of the teacher. The second section gives examples of the ways in which teachers have used these tools to highlight specific aspects of learning, suggesting the power of intent **[3]** in the use of tools**.**

In the fourth section I move to a consideration of my own and the University's role in this process. I reflect on the way in which types of academic product are funded, feted and translated **[5, 8, 9]** between collaborators in practitioner-university research partnerships (PURPs), with brief reference to the debates about knowledge production and quality in educational research **[1]**. By drawing comparisons between a failed **[6]** and a successful **[4, *inter alia*]** research partnership, I will demonstrate key factors which support and retard the development of effective, mutual collaboration.

The conclusion will then bring together these threads and focus on areas of potential for professionals from all areas of education who are tempted to venture into these 'swampy lowlands' (Schön, 1987, p1)

Section 2: What internal and external processes support professionals in enacting change?

Once, I was a classroom teacher, working in early years and Key Stage 1 with children aged four to seven. The schools I worked in were in areas of considerable social deprivation and grappled with problems of equity and justice as well as externally measured performance. In particular, relationships with parents emerged as crucial to my practice: developing a shared understanding of their children and our aspirations for them became my main goal. I found that I did not have enough time to develop authentic conversations with parents in the flurry of the beginning or end of the school day, so I tried to make the school day more permeable by inviting parents to stick around in the morning and participate in the first activity and to join us for the last half hour of the day, which tended to be reflection, stories and songs. Some parents were able to spend time in the classroom in this way. As we got to know each other and both parties began to relax and let their guard down, it became clear that our aspirations were largely overlapping but the language we used to describe them was quite different. It took some months for the beginnings of a common vocabulary to develop but once it did, there were significant shifts in the motivation and achievement of the children – not just those whose parents frequently came in but all of them. It started to occur to me that I was not teaching the parents to be more in step with the school, nor was I being taught to be more in step with the community. Something was changing in the classroom culture, the kinds of conversations were different and, though subtle, this change was having an impact on the children's ability to understand what was being asked of them, to make independent decisions to engage with the activities and to scaffold themselves and each other in their learning (Timperley and Parr, 2009). At the time, I was not sure what I had done that had made the difference and I wanted to find out more about home-school relationships, so I embarked on my post-graduate research (Straker and Hall, 1999).

I spent a year as a participant observer in a Family Literacy group and the focus was on how groups like this are managed by the teachers who run them. I began work as a contract researcher and realised that a key feature was equally apparent across a range of projects and settings – family centres, nurseries and schools all struggled with issues of territory, boundaries and roles (Hall and Santer, 2001a; 2001b). Westwood (1986), argues that

> "Adult education has a social class bias born out of the defeats of the school classrooms and its organisation, in terms of classes, courses, teachers and its physical location within schools, colleges and universities which represent to the majority of people a reproduction of school practices." (ibid., p37)

If, as I was beginning to believe, parental involvement programmes were potential arenas of cultural conflict one might expect physical battle lines to be drawn. For some members of staff, the relationship with the community was seen in territorial terms and the most frequent staffroom complaint was about noise and/or obstruction caused by parents in corridors: there was a frequently expressed desire that parents should not feel free to enter certain areas of the school. This demarcation of territory was increased by the opening of the community wing, when community groups began to come into less direct contact with the everyday life of the school. This feeling of separate identities and territorial identification is well illustrated by one particular event. The group had a trip to a local art gallery where a large collaborative piece was made by parents, children and two artists. The trip was a resounding success and the work itself much admired. Conflict arose however, about where it should be displayed. Jane (a parent) expressed a popular view that *"it's our work, we made it, it should be in the games room or the meeting room where we can look at it"*. Prue (the Literacy Co-ordinator) was however adamant that it should be displayed *"in the school, on one of the notice boards, for everyone to see."* Prue's use of the word 'everyone' is telling: parents and children would see the banner in the games or meeting rooms, teachers would be much less likely to. Joy (the community teacher) tried to suggest that the banner could be hung in the community lounge as a compromise solution; this was acceptable to the mothers, but not to Prue, revealing that despite its proximity to the office and the hall, the community lounge was not 'school' territory.

Looking at power relations from a social geography perspective was very useful in the evaluation work which forms the bread and butter of the jobbing researcher and allowed a critical and reflective strand to develop in my work which might otherwise have been dominated by the demands of funding deadlines and the complex needs of commissioning organisations **[6]**. From the exploration of how physical space was used to transform or limit relationships (Hall and Santer 2001a) came an understanding of how space in the wider sense – space to think, space to take risks or experiment - was necessary for change to take place (Leat, 2006).

Moving from a naïve belief that the desire for change was the only factor, my experience began to indicate that teachers (and other professionals) needed a combination of different kinds of expertise and a context in which they can exercise them with a degree of both freedom and support. I will explore how teachers experience the process of enacting change and of working outside their comfort zones, using the experiences of teachers from the Nuffield-funded Professionals and the Development of Children's Communication Skills project (Mroz, Hall, *et al,* 2002 **[10, 11, 12,]**) and Phases 3 and 4 of the Learning to Learn research project (Higgins, *et al*, 2005; 2006; 2007; Wall, Hall *et al,* 2009 **[1, 2, 4, 7, 10]**).

In these projects, teachers demonstrated varying degrees of ability to enact and manage change (Lieberman and Pointer Mace, 2009). Certain traits and behaviours appeared to be associated with what Berliner terms 'fluid expertise' (2001). This is not simply about a process of separating one type of teacher from another, however, designating expertise as a concrete 'state'. Indeed, our understanding of the variable and fluid nature of approaches to learning **[8, 9]**, motivation (Apter, 2001) and professional careers (Day *et al*, 2006; 2007) forces us to recognise that most teachers will move between periods of activity and consolidation, experiencing times when they are certain of their knowledge and skills and others when they are challenged to extend their comfort zones. Increasingly our work in the Research Centre for Learning and Teaching suggests that when they find themselves in a 'working space' (Leat, 2006), all teachers have the capacity to make use of fluid expertise. I began to conceptualise working space as constructed for each teacher out of a combination of her professional knowledge and understanding; her professional and multi-professional confidence and her personal qualities of resilience and risk-taking.
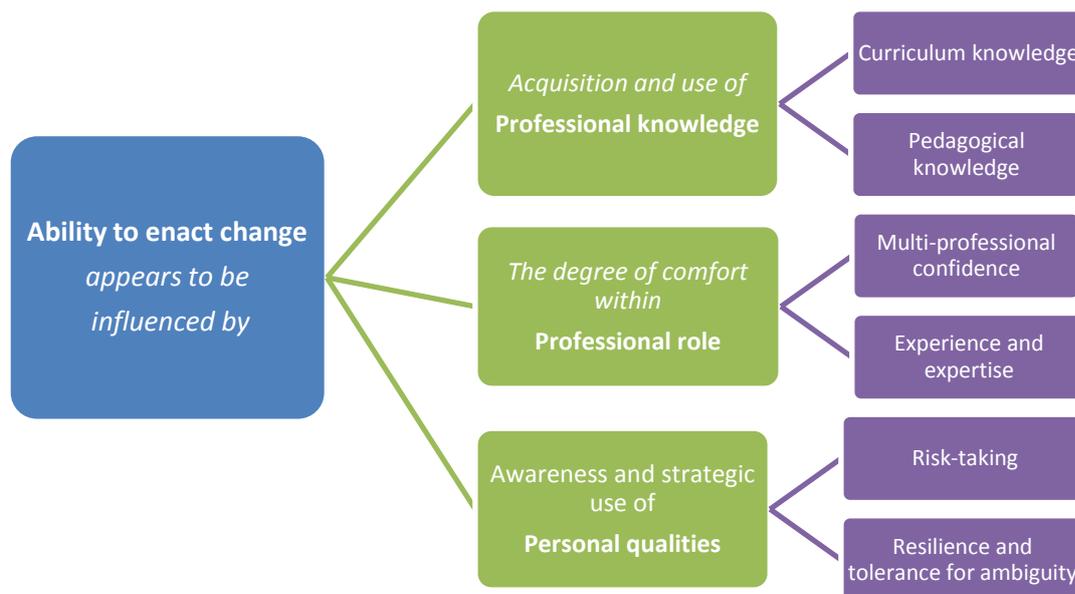
Figure 1: Model depicting elements theorised as contributing to the enactment of change

Professional Knowledge and Professional Role

The interaction between professional knowledge and professional confidence was exemplified in research (Mroz, Hall, *et al,* 2002) which focused on the extent to which early years professionals (teachers, nursery nurses, child-care workers and playgroup leaders) were equipped to respond to these responsibilities, at a time when health service provision was being scaled back (Pearson and Hall, 2004). Data from 829 questionnaires completed by a range of professionals from the North

East of England revealed that there were three significant barriers to early years professionals (and teachers in particular) taking up this new challenge: the quality of initial training **[12]**; the ability of practitioners to identify children accurately **[13]** and the willingness and skills to work in multi-professional relationships to support children with communication disorders **[11]**. The development of competence was hindered by the lack of bridging concepts between developmental and pedagogical understandings in the teachers' initial training (Van Huizen, *et al*, 2005) and by the relatively mono-cultural nature of the typical school professional environment, which left teachers less likely to pick up specialist expertise in supporting communication development through professional learning (Eraut, 1994) or communities of practice (Wenger, 1998). The majority of respondents were reasonably confident in their ability to understand and relate to practice the key elements of speech and language development. However, levels of confidence did not correlate with performance on the sample problems: confident respondents were no more likely to correctly identify children with communication problems, suggesting that the basis for confidence (or lack of it) may not have been particularly objective **[12]**.

Fifty interviews were conducted with a desire to explore the findings of the questionnaire – in particular how the skills and knowledge needed to support children with communication difficulties meshed with professionals' views of their roles **[10]** and how they were able to get past some of the barriers and provide good support for children. It soon became apparent that narratives of success featured occasions when teachers had crossed boundaries to form alliances with speech and language therapists. Professionals who had SLT support, made more use of practical activities, such as games and homework and reported better outcomes for children. Professionals' expectations of SLTs and their understandings of their working practices were variable but the idea that more and better communication was needed was repeated in almost every interview.

The nature of multi-professional working in mainstream provision is imperfectly understood, despite the prevalence of reports citing the success of individual multi-professional initiatives (for example, Doyle & O'Brien, 2000) and a growing focus on inter-professional working in special schools (Hartas, 2004, Tollerfield, 2003). There are complex questions about how partnerships should be constructed without devaluing professional differences (Huotari, 2003), which arguably must come to terms with the subtext of policy exhortations to 'pull together', for as Forbes (2001: 199) has asserted *"new conceptualisations of collaborative working … challenge the established professional values of autonomy, knowledge and responsibility".* Where things go well, key issues appear to be clarity, authenticity and a diversity of operation, which is dependent on the quality of relationships between

key individuals (McLaughlin, Black-Hawkins and McIntyre, 2007). The lack of attention to these issues is also associated with poor outcomes.

What emerged clearly from our interviews **[11, 12, 13]** was how much teachers and other professionals focused on the relational aspects of this work; time spent together working on specific children's needs rather than generic training; focused feedback on practice and progress, again relating to individual children and the key aspect of having not only the correct number to call a known 'expert' but the social permission to do so. Multi-professional working space therefore shares several key aspects with working space within practitioner enquiry (**[3],** see Figure 2, below): a focused enquiry task (grounded in individual intention); agreed measures of outcomes (embodied in a common language of process and warrant supporting appropriate tools and weighting of evidence) and a supportive network (in which constructive critical listening - including the permission to fail - and professional ideals are fore-grounded) **[4, 6]**.
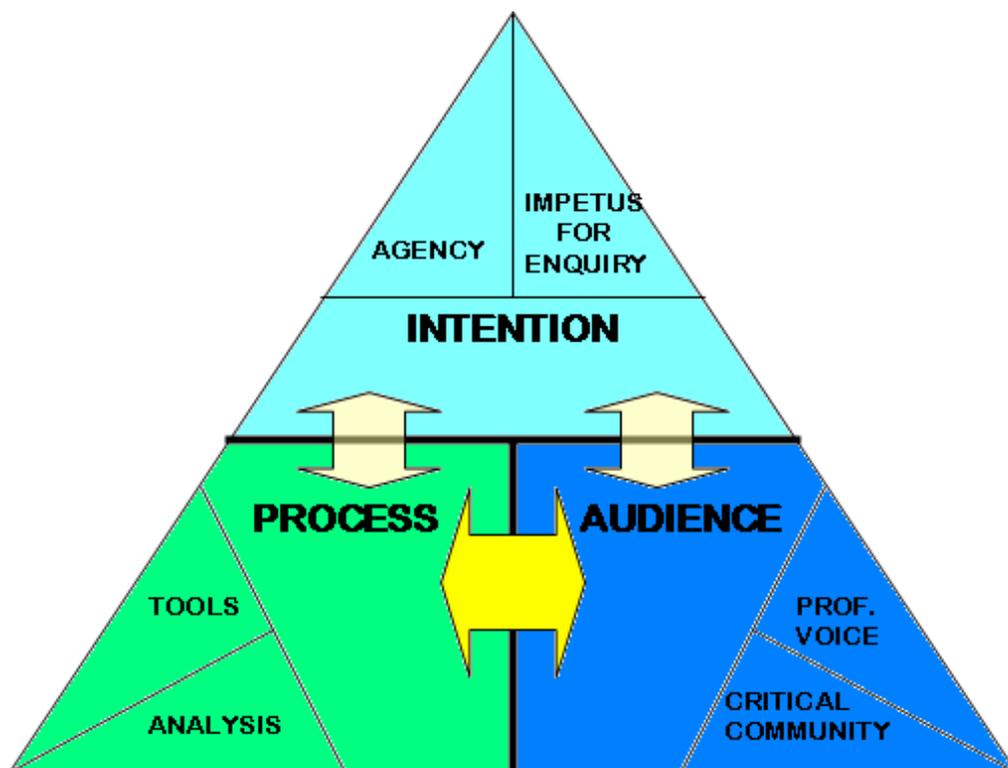

Figure 2: Model showing the relationships underpinning practitioner enquiry,

reproduced from Baumfield, Hall and Wall, 2008

Personal Qualities

A common charged levelled at practitioner enquiry in the educational literature is that it is both under-theorised and overly dependent on uncritical narratives. This section describes my attempts to take strands from socio-cultural and psychological perspectives and to weave them together into something that was a reasonable representation of the experiences of teachers. The section also contains the responses of some teachers to this attempt, thereby ensuring that critical, dissenting voices are heard.

An individual teacher embarking on a multi-professional relationship **[11]** or making new partnerships with families **[10]** or taking on a 'practitioner-enquirer' role **[1]** is experiencing change. This involves a change of 'field' (Bourdieu, 1999; Reay, 2000), a move into unfamiliar territory, often extremely poorly defined and 'seen' differently by the different partners. The degree to which teachers can successfully negotiate this depends upon the amount of social and cultural capital they can bring: bearing in mind each encounter is freighted with inequity. An encounter with parents reveals the difference in cultural (school-specific) capital between teachers – predominantly middle class – and of parents targeted for 'involvement' – overwhelmingly working class (Tett, 2001; Bourdieu, 1999). In another context, a teacher trying to establish multi-disciplinary working with a speech therapist may find that some (but by no means all) of her cultural capital will transfer, though the power relationship between the two may be imperfectly spelled out. When joining a 'community of enquirers' **[4, 2]** teachers may find their novice status in relation to research techniques difficult to negotiate, while at the same time feeling a lack of trust for 'experts' who are so far removed from the everyday realities of classroom practice. Even where these inequities of experience are openly acknowledged, teachers may experience the value placed on their 'practical' knowledge as condescension and doubt their own ability to contribute **[1]** (Baumfield 2001; McLaughlin and Black-Hawkins 2004).

What Bourdieu offers us, in terms of a theoretical frame, is the opportunity to nest the individual classroom as a 'field', within the 'social fields' of the community, the school and other agencies and then within the 'policy field' of educational and economic priorities. For each of these fields there are elements of capital - social and cultural - to be assigned amongst the participants. The assignment of power is often hard to read, embedded as it is in the taken-for-granted of habituated practice and social norms. There is often a paradox at work here: where the intention is of equal collaboration but this remains at the level of aspiration, working relationships between 'partners' tend to be less equal. Other work in the past looking at interactions in more structured settings – e.g. referred family centres or special needs referral panels (for example, Santer, *et al,* 2000; Hall

and Santer, 2001; Todd and Higgins, 1998)– suggests that the more explicit everyone concerned is about the power relationships and the roles which are expected, the more productive the relationship. Where it is accepted that 'partners' do not start from an equal position, where the very concept of 'partnership' is problematised, it appears that it becomes possible for genuine and appropriate contributions to be negotiated. However, while this has been seen to work, as in the examples above, where one or more of the parties is compelled to be there, it is more complicated in situations where everyone is in one sense a 'volunteer' and in another, enmeshed in a complex net of institutional and personal demands. I will return to this in Section Four.

Meanwhile, while Bourdieu gives us a way of particularising the general, placing the individual actor with their allotment of capital into a new field, we are left with our lived experience that actors with apparently similar resources approach the risky business of new experiences very differently. Beck (1992), in contrast, offers a frame which generalises the particular. By placing individual experience to the forefront of a theorised new (second) modernity, Beck and his colleagues allow us to see the choices and risks of each individual as part of a pattern of interactions which shapes all our lives, through a globalised economy, a dissociated state and new configurations of family and community.

> *"Second modernity requires us to reject rigid roles and identifications, to become tolerant of change, risk and ambiguity and to make choices: "Reflexivity, Beck notes, is characterised by choice, where previous generations had no such choices. What Beck omits to say is that this choice must be **fast**, we must – as in a reflex – make **quick** decisions."*
>
> (Lash, 2003 p51, original emphasis).

Role shifting, whether in response to external demands or internal desires, appear to be one of the defining hallmarks of second modernity. Beck proffers the optimistic view that risk is an equalising factor in life: we all face it and must engage with it. However, the implications of the data on multi-professional working (Hall, 2005 **[10]**; Hall and Mroz, 2003 **[11]** and Letts and Hall, 2003 **[12]**) are that in the shift from first to second modernity, the most excluded are doubly-disadvantaged, both by the limitations of their old, rigid roles and the increased risk and uncertainty of everyone's new, self-determined roles. 'Risk' as a concept must be 're-socialised' (Ball, 2003): that is, woven back into the concepts of capital and field and so nested within an understanding of the readiness of individuals to engage with it. As Ball notes, *"some are able to use economic, social, cultural and emotional capitals at moments of crisis or key moments of transition to ensure access to privileged trajectories or to avert calamity"* (2003, p169) and clearly, others either do not have access to these kinds of capital or are not able to deploy them as effectively. While this distinction can, and has been applied to disadvantaged groups (Reay, 2000 Tett, 2001), it is only more recently that the trajectories of members of relatively homogeneous groups like teachers have been examined

(James, et al, 2007; Thomas, forthcoming) and even more rarely, where unsuccessful and ambiguous as well as successful narratives have been explored in depth (Day, et al, 2007).

I was interested in whether individual readiness to engage with risk could be explored psychologically (Walkerdine, *et al,* 2001). It seemed reasonable to assume that, like other populations, teachers are differently equipped to handle risk. I wanted to test the idea that particular psychological strengths supported the management of change for teachers and I was fortunate to be working on a long-term collaborative enquiry project, so that I could develop and explore these ideas with a group of teachers. Learning to Learn is an action research project based in schools in four LEAs: Cheshire, Cornwall Enfield and Northumberland (Higgins, *et al,* 2005; 2006; 2007; Wall, Hall *et al,* 2009) and which also includes two Further Education Colleges in Lewisham and Northumberland. Learning to Learn is a project that aims to make explicit the processes that underpin learning and teaching, so that teachers, students and their families can work together to promote more successful lifelong learning. Teachers identify the focus of their own research scaffolded within a community of enquirers (Hall, *et al,* 2006 **[5]**). It has been our contention within the project that in order for the risks to be overcome, innovation needs to nest within a school culture that encourages experimentation (Eminovich and Battaglia, 2000). Even within this, teachers have been operating outside their comfort zones. The active participation of parents and carers in the classroom **[10]** or the proactive engagement with teachers from other contexts to share enquiry questions **[4]** has been a considerable risk for teachers, who, after all, are not trained to work with adults and many of whom find an 'adult eye' on their day to day practice a threatening thing (Nias, 1986).

At the biannual regional training sessions and at the yearly residential we reflected our understanding of teachers' enquiry projects to them as radical and, to an extent, risky. As a body, the teachers were very uncomfortable with this description of themselves: they felt that the work they were doing was rooted so strongly in their particular contexts, so supported by the process of enquiry and so iterative and developmental as to be not risky at all (see also Ecclestone and Field, 2003 for a discussion of some of the difficulties associated with using this language). This is one of the major problems of participatory work, when you ask people to validate your understanding and instead they challenge it. Nevertheless, there were clear indications from the teachers in these discussions that doing 'Learning to Learn' was a *different* and *distinctive* teacher behaviour, one that was linked to individual personalities. One teacher described it as being on a spectrum of behaviours like autism and many teachers reported difficulties in 'scaling up' within their schools, with debate raging around whether it was possible for a teacher to 'become' L2L without the

experiences of the project, or without certain key beliefs or characteristics. Clearly, there are lots of reasons why scaling up is problematic which are structural – there are a lot of things going on in complex institutions and not everyone can be interested in the same thing. However, the business of engaging colleagues to try something new, something which would involve experimentation, enquiry, risk suggested to me the question: were our teachers, the happy enthusiastic innovators, psychologically different from their colleagues and could this be measured?

The use of the term 'risk' is driven by context and individual understanding: there is a considerable difference between thrill-seeking behaviour and an awareness of the risk of doing nothing, for example. As teachers were so opposed to 'risk', I turned to tolerance for ambiguity. Tolerance for ambiguity is the extent to which individuals are comfortable with the unknown. Risk aversion and ambiguity aversion are closely associated (Keller, *et al*, 2002) but they are not the same thing. *"Under risk, the likelihoods of alternative outcomes are fully known. Under ambiguity, these likelihoods are unknown."* (Smith *et al*, 2006). Intolerance of ambiguity is associated, in students, with the desire for greater course structure, so one might hypothesise that teachers with low tolerance might seek out or attempt to maintain more structured experiences in their professional lives (DeRoma, *et al*, 2003). Sherrill (2001) argues that tolerance of ambiguity is a necessary component for professionals in an age of change, echoing Beck's description of a 'Brazilianised' world (2002). Tolerance of ambiguity is also associated with key interpersonal skills for working outside of normal roles successfully, including negotiation and the ability to accurately reflect on information presented during encounters (Yurtsever, 2001) and with creativity (Tegano, 1990). Bowen and colleagues (1994) indicate that most people are relatively tolerant of both risk and ambiguity in the mid-range, but intolerant of large amounts of ambiguity, but other authors argue that this ignores issues of context and role, and for many individuals in the caring professions, even relatively small amounts of ambiguity may be highly stressful (Wittenberg and Norcross, 2001), particularly in individuals with tendencies towards perfectionism.

We asked the teachers to complete a sixteen-item Tolerance of Ambiguity scale (designed by Budner, 1962) which has acceptable content, concurrent and construct validity (Furnham and Ribchester, 1995) and sub-divides tolerance of ambiguity into Novelty, Complexity and Insolubility. The results were that the cohort fell within the normal range of distribution of scores given by Budner, with only one respondent scoring below the 'normal' curve. Most (36/45) of our respondents cluster quite closely about the mean – within 1 standard deviation – with three demonstrating relative intolerance (cases 42-44) and six relatively high tolerance (cases 1-6).
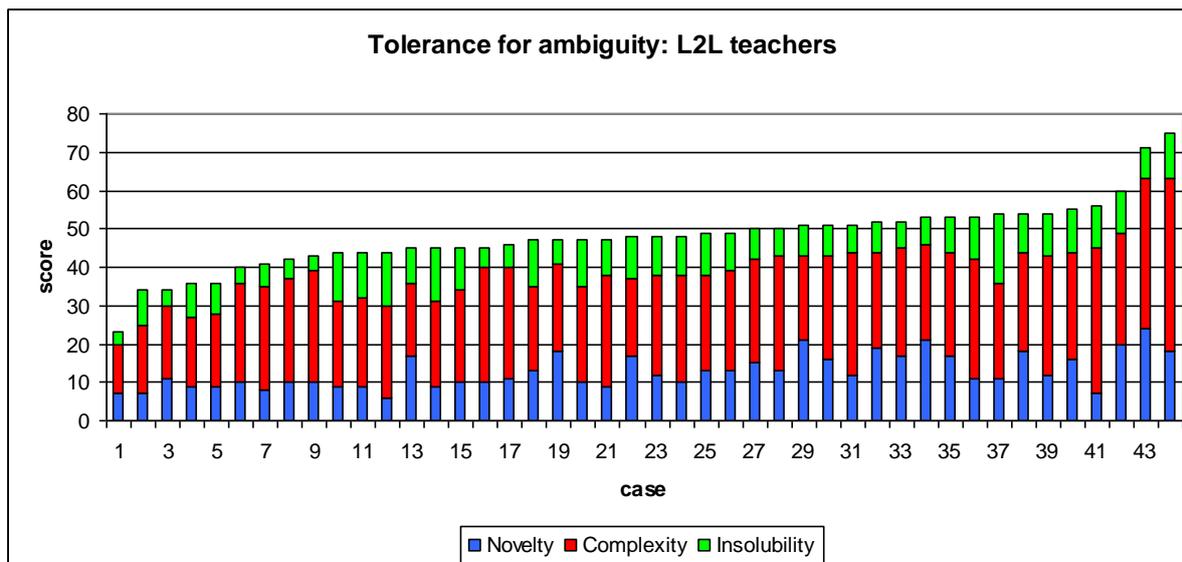
Figure 3: Chart displaying the tolerance for ambiguity scores for Learning to Learn teachers (Hall and Wall, 2006)

What this data shows is that there is no simple psychological test or marker for innovative teachers and further reading and discussion suggests that the role that ambiguity plays in teacher innovation is probably more complex. Bennett and colleagues (1990) indicate that while ambiguity-tolerant individuals experience less job-related anxiety, they are also less likely to seek feedback on the nature of tasks or on their performance – and feedback loops are key elements of Learning to Learn and to expert teaching (Bond, *et al,* 2000; Hattie, 2009).

The literature suggest that there are important cross-cultural differences in ambiguity tolerance (Atkins, 2000; Furnham and Ribchester, 1995) and also implies that there are 'group effects' in ambiguity aversion –that individuals reinforce one another's aversions when making collective decisions (Keller, *et al,* 2002) -this could be a significant element in the conservatism of staffrooms. Durrheim and Foster (1997) present evidence to suggest that ambiguity tolerance is content-dependent, rather than a fixed personality trait, which sits well with our prejudices against psychological labelling **[8]** but also connects with an important finding from Frone's (1990) meta-analysis is that tolerance for ambiguity is a strong predictor of job satisfaction where there is role ambiguity. This also connects to the finding that experienced teachers have 'crystallised' expertise (Hattie, 2003) – a mastery of content and procedure that is heavily context (and therefore role) dependent, whereas expert teachers are more likely to have 'fluid' expertise – where knowledge and skills can be readily adapted to new demands and situations (Berliner, 2001).

Although the theoretical frames and measures I used have produced more questions than clarity, this work was valuable for me in terms of bringing together a range of perspectives and allowing myself the freedom to experiment and fail that forms the essential permission within practitioner

enquiry. I was not satisfied with any of the theoretical or methodological frames that I investigated, so they never got beyond conference papers and speculative seminars. In the context of an academic career, this part of the story is about being blown off course. However, I think that some of these ideas still have value in the overall understanding of enacting change, since they speak to the ways in which teachers' own metacognition and learning are managed (Baumfield, *et al*, 2005; Hall, 2006) and the ways in which the psychological and ecological aspects of learning are nested within one another (Bronfenbrenner, 1979). While it did not give me publications or funding, this enquiry did give me insight into how to tailor my support role to individuals within the L2L project. I will return to this, therefore, in Section Four.

The development of a theoretical understanding of a change agent identity was only part of the picture. Meanwhile, I was engaged with a group of teachers who were getting on with enacting change. They patiently indulged my attempts to theorise about it, filling in questionnaires and being interviewed about the ideas of risk, culture and capital. Together, we built up a picture of their professional resources, both internal and external (see Figure 4 below). Internally, they make use their pedagogical content knowledge: their understanding of learning development and progression through a series of skills and processes, their values and beliefs about learning and teaching, their knowledge of subject content and the 'big ideas' in their discipline. *"It is more fruitful to see practice as permeated by theory and theory as permeated by practice in professional fields. It is this 'mixture' of knowledges which constitutes the resource which a professional relies upon in carrying out her work"* (Reeves, 2007, p2) and teachers use their own modes of engaging with learning, shaped by their professional learning experiences and supported by the extent to which they can make autonomous decisions about how to proceed (Baumfield, Hall and Wall, 2008 **[3]**).
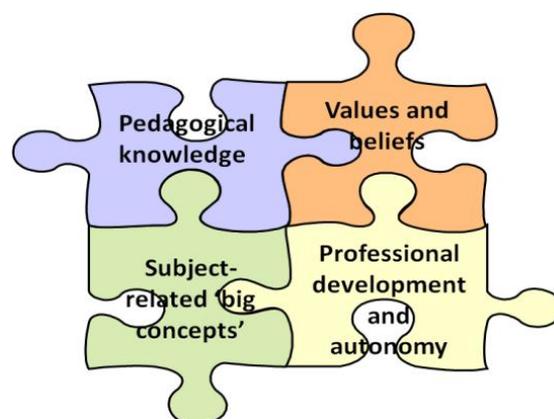
Figure 4: The jigsaw of teachers' personal learning resources (Wall, *et al*, 2010)

Some teachers seemed to mysteriously arrive at fluid expertise while others had a story to tell about their learning journey (Bloomer and Hodkinson, 2000) and the specific external resources: strategies, relationships and tools **[2]** that had scaffolded (Vygotsky, 1978) that learning. It was this last cluster that caught my attention since it promised the opportunity to sit more closely and authentically alongside the enquiring practitioners. By focusing on their case studies and what they used to improve learning in their settings, I might be able to observe change in motion, to look at the complexity of intent, personal capacity and action. The exploration of tools is reported in Section Three.

Section 3: Tools for enacting change in learning and teaching

In this section I move from what teachers believe and do to enact change to what they use. The roots of this understanding are in the work on skills and styles **[8, 9]**, reflecting the awareness that powerful pedagogies (Leat and Higgins, 2002) have the ability to impact a range of learners and to motivate teachers to see their practice and their classrooms differently. Tools are important for teachers' professional metacognition (Hall, 2006). I am locating the discussion of metacognition within the model (Figure 5 below) described in *Frameworks for Thinking* (Moseley, *et al*, 2005a), which synthesises thirty-five conceptual frameworks of thinking and learning.

STRATEGIC AND REFLECTIVE THINKING		
Engagement with and management of thinking/learning, supported by value-grounded thinking (including critically reflective thinking)		

COGNITIVE SKILLS		
Information-gathering	*Building understanding*	*Productive thinking*
Experiencing, recognising and recalling Comprehending messages and recorded information	Development of meaning (e.g. by elaborating, representing or sharing ideas) Working with patterns and rules Concept formation Organising ideas	Reasoning Understanding causal relationships Systematic enquiry Problem-solving Creative thinking

Figure 5: Moseley *et al*.'s (2005a) Model of frameworks for thinking

Moseley *et al* criticised Marzano (2001) for making too sharp a distinction between *self-system* and *metacognitive system*, instead adopting a more holistic concept of *strategic and reflective thinking*. Although the model is not intended to be hierarchical, the authors are explicit in stating that strategic and reflective thinking

> *"… is really about what makes for good thinking, especially through the use of self-regulation and metacognition….we make a distinction between cognitive skills and strategic and reflective thinking, i.e. between cognition on the one hand and self-regulation/metacognition on the other: … strategic and reflective thinking may be used at any phase… strategic and reflective thinking are always highly conscious and are often experienced as involving will and/or emotion as well as cognition… require sustained concentration, not only on the matter in hand, but also on how a task is conceived and whether or not there should be a change of strategy in the light of new and previous experience… Most significantly, it changes what could be a routine process into a learning experience."* (ibid, 90)

The Learning to Learn project and the wider culture of collaborative enquiry projects in the Centre for Learning and Teaching have generated a broad understanding that there are some key positive conditions attendant upon thinking skills programmes, collaborative continuing professional development and enquiry projects which appear to support opportunities for teachers to develop their metacognitive awareness and skilfulness (Hall, 2006; Hall, *et al* 2005 **[7]**). The lessons from the empirical data are that the impact of these positive conditions is extremely variable and that the individual ecologies of schools, perhaps even the individual psychologies of teachers are *at least* as important in facilitating metacognition. The evidence does not support a model of implementing programmes, however well-designed, to encourage metacognitive behaviours. Metacognitive development appears to be dependent of the extent of 'fit' between the positive environment and the actions that take place within it. Focusing on the mediating role of tools appears to be a way of seeing this happen in real time.

In writing about tools, I am aware that the term has specific meanings in ICT (for example, Amory, 2007; Johnson and Dyer, 2008) and activity theory (for example, Paretti and Burgoyne, 2009; Waycott, 2005). In this instance, I have used the Deweian idea of tools to explore the ways in which the intent of the teacher and the fitness for purpose of the pedagogy interact. This interaction produces more than a simple increase in learning 'efficiency': I will argue that also there is the potential for deeper changes to take place. In order to make more vivid the ideas that we have developed in our research team, I have located this theoretical frame within an exploration of the ways in which teachers in the Learning to Learn project draw on a range of resources in their work.

Glassman (2001) makes an important distinction between Dewey and Vygotsky's understanding of tools in the learning process. For both, tools are created by social and cultural forces and their use is mediated through the immediate context of the learner (for Dewey, their 'experience', for Vygotsky, 'culture'). However, while Vygotsky emphasises the role of the culturally constructed tool in setting and limiting the frame for learning, Dewey makes greater attribution of individual agency to the learner, both in terms of what is to be learned and in terms of how the tools available can be employed or customised.

It is important to make a distinction between what are commonly referred to as 'toolkits' and the tools, or in Deweian terms 'technologies' (Burkitt, 2002) that are in use in professional practice. A toolkit is designed with the intent of solving pre-specified problems for another learner, it therefore necessarily prescribes the specific tool to the specific task and sets out the parameters of operation. There are, in 'kits' produced by government agencies, implicit tendencies towards the homogenisation of practice in the pursuit of higher standards. In contrast, the emphasis here on

'tools as technologies' privileges the process of using the tool, the individual teacher's engagement with the tool, the task and the context. This is not opposed to standards: a rich understanding of how good results have been produced is more likely to support continuous improvement than a rigid adherence to a prescribed procedure. The tool as technology in the hands of the reflective teacher allows for a range of interactions:

> *"A tool is also a mode of language, for it says something to those who understand it, about the operations of use and their consequences… in the present cultural setting, these objects are so intimately bound up with intentions, occupations and purposes that they have an eloquent voice"* (Dewey 1938 p46)

The link between a pedagogy for metacognition and tools for enquiry has emerged through our systematic reviews of research into impact of thinking skills approaches on teachers and students (Baumfield 2006; Higgins *et al.* 2007, 2005 **[5, 7]**). Tools, as technologies have been designed to make a particular activity different: faster, slower, richer, more focused, more efficient, more sustained. Tools change or re-shape the semiotic frame for an activity (Bosch and Chevallard 1999; Wall and Higgins 2006), carrying with them the rules for how they are used. In this sense, one can argue that tools are part of the implicit learning of a professional culture, since they frame practice and thus practice develops as new tools and technologies facilitate or enforce change (Hickman, 1990). When using a new tool in the context of pedagogical practice, the teacher has the opportunity to engage in a re-framed experience that will have aspects of familiarity – since the tool is grounded in the territory of learning – and of novelty – since that is the expressed purpose of the tool. This combination of security and novelty creates the conditions for the teacher to become engaged in a feedback loop which can lead to new understanding through the experience of positive dissonance (Baumfield 2006). This is the tool's catalytic quality: it can change the composition of other agents in the environment or organisation without necessarily itself being changed. Although tools can be characterised as determining the frame within which the teacher works, the individual agency of the teacher comes from deciding which aspects of the feedback to prioritise and whether and how to act on this information. Indeed, our experience in Learning to Learn suggests to us that, for some teacher researchers, tools can generate the kinds of dissonance and questioning, the multi-layered, ever-expanding exploration of meaning in a particular learning interaction which lead to a transcendence of 'tool as artefact'. In these cases, the tool becomes an epistemic object (Knorr Cetina, 2001), enticing the researcher into further enquiry.

This process is supported within Learning to Learn by the cycles of enquiry and inquiry (Baumfield and Higgins, 2008, Figure 6) which take place for each teacher within the span of each year: as part

of the structure of Residential, INSETs and personal enquiry teachers engage critically with educational research and in their own contexts they conduct an inquiry **[1]**.

Enquiry: engaging *with* research	Inquiry: engaging *in* research
Enquiry means a request for information or look into something, implying a more general level of exploration.	Inquiry (in the UK) implies a more detailed investigation such as a legal or public inquiry.

Figure 6: Contrasting enquiry and inquiry (Hall, 2009)

As they do this, they gain mastery of enquiry and inquiry technologies (represented in Figure 7 below as keys), which have impact on one or more of their internal areas of resource. As the model implies, the intent of the individual teacher has some impact on both the kinds of tools they employ and the nature of the feedback received **[3].**
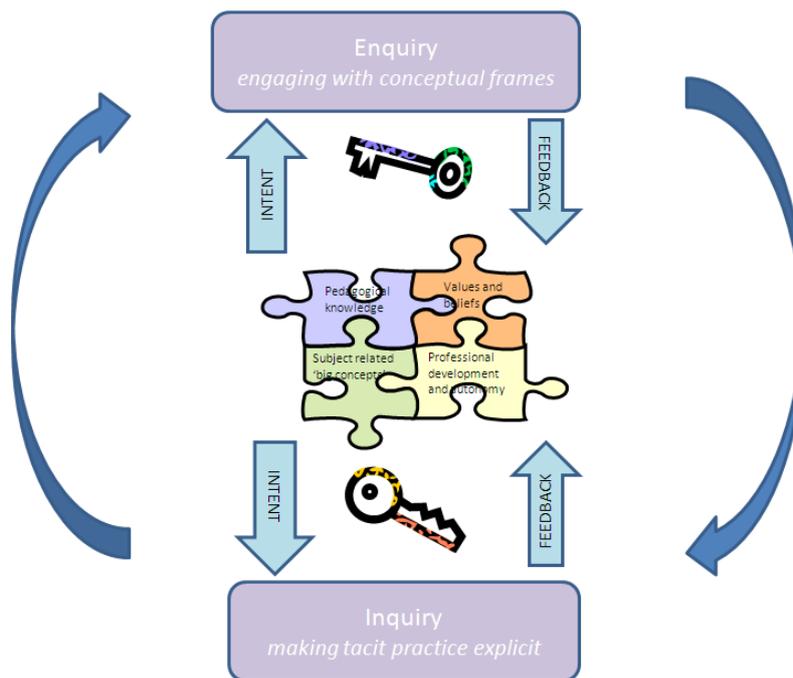
Figure 7: Bringing together teachers' resources in the enquiry process with tools (Wall, *et al* 2010)

Within the Learning to Learn project we have developed our own metacognitive tools **[2]** and we have adopted and adapted tools from other researchers and projects all of which are available to the teachers in their resource packs and their use and customisation is supported through our email contact. These tools enable feedback to be used productively both in the here-and-now of the classroom interaction and reflectively within the enquiry cycle.   The classroom interactions

engendered and supported by the use of tools not only make learning more explicit and accessible to the learner but also enable teachers to move beyond surface detail as the process of teaching is opened up to critical enquiry. Indeed, we argue that the pragmatic 'dual use' of these tools gives them a catalytic quality, creating the conditions in which new thinking can develop.

The crucial process element of catalytic tools is the rate and precise nature of the feedback produced. The feedback from catalytic tools is immediate, context-specific and highly relevant to the teacher and learners' immediate needs: be they reflective, diagnostic, focused on knowledge, skills or affective elements of learning. The Pupil Views Template (PVT), for example, works 'in the moment' as a teaching and learning tool but, used as a research tool, differences between individuals and groups **[8]**, changes over time, discourse and evidence of metacognitive behaviours can all be explored.

Teachers in Learning to Learn make use of catalytic tools with different intent: primarily to support changes in pedagogy and interaction or as both pedagogical and research tool. For some teachers the tool is used, critically, with the format and implementation of the tool itself subject to the same scrutiny as the students' performance or the research data **[2]**. The kinds of tools that have been used in Learning to Learn are diverse but as we began to look at the ways in which the tools had been used a pattern began to emerge (Wall, Hall, *et al,* 2009) which was linked not to the 'label' attached to the tool in terms of its original design but to the intent of the teacher **[3]**. Clearly, the 'territories' of pedagogy and interaction intersect but the gradual distinction implied in Figure 8 points up the shift from the dominance of the teacher's voice to a more democratic and less predictable learning space.

Use	Tool type	Intent
Tools aimed at changing pedagogy	Scaffold	Supporting learning moment to moment, getting together with the learner in the Zone of Proximal Development (ZPD)
	Measure	Providing feedback on process, progress, understanding or affect for the teacher and/or the learner
	Lens	Generating new perspectives, focusing in on detail or outwards to gain breadth
Tools aimed at changing interaction	Frame	Changing structures for talk or for interaction, making new kinds of talk or interaction permissible

Figure 8: A taxonomy of tools (Wall, *et al* 2009)

There were some tools which had a purpose primarily directed towards pedagogy: either in terms of scaffolding (Vygotsky 1987; Wood *et al.* 1978) and supporting learning or in terms of providing feedback for learners and teachers about what was going on, what progress had been made or what current understanding was. There were others which were deployed to have an impact on how learners interacted with each other and with teachers and tools which were intended to produce a shift in thinking about learning, opening up new perspectives and possibilities.

Clearly, the 'what' of tools is only one factor: the 'how' and most especially the 'why' of use are crucial. In Learning to Learn, a range of tools (examples summarised in Figure 9 below[2]) have been used to develop and extend students' existing skills, by for example encouraging learners to internalise a list of resources that could be accessed before asking an adult for help, thus strengthening their independence and self-concept (Cloughwood Special School).

Tool type	Intent	Examples from Learning to Learn
Scaffold	Supporting learning moment to moment	Learning Mats (King Edward VI High School,) Study Skills (Lewisham College) Five before Me (Cloughwood Special School)
Measure	Providing feedback on process, progress, understanding or affect	Marking Ladders (Wooler First School) Beat the teacher (Packmoor Primary School) Investigating barriers (Carterhatch Primary
Lens	Generating new perspectives, focusing in on detail or outwards to gain perspective	Philosophy for Children (St Meriadoc Infant and Nursery School) Reflection on learning (Fleecefield Primary) Mind mapping (Duchess' High School)
Frame	Changing structures for talk or for interaction	Circle Time (Weaverham Forest Street Primary) Mantle of the Expert (Marlborough Primary) Lollipop Partners (Hipsburn First School)

Figure 9: Examples of tools in use (Wall, *et al* 2010)

A simple game of 'Beat the Teacher' produced quick, fun feedback on the degree of mastery that students in Key Stage 1 had on a range of learning objectives in numeracy and literacy (Packmoor Primary School). The lens can reveal more widely than at first expected: focusing on the children's

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[2] Full details of how the tools have been used can be found in each case study www.campaignforlearning.org

reflective skills led the teacher to realise that her own ideas about reflection needed more clarity in order for the children to progress (Fleecefield Primary). A new way of picking working partners (Hipsburn Primary School) was more than just an organisational shift: supported by class discussion and reflection, the random assignments led the children to explore what a learning partner can do and opened up a range of possibilities previously obscured by the desire to work with their best friend!

The catalytic nature of the tools also needs to be acknowledged: there are not hard boundaries between these categories: often the initial intent may have been to scaffold and measurement was a welcome but unintended consequence.   Investigating barriers to learning, recording them and reporting them was the primary intent at Carterhatch: however, by enlisting the Year 4 students as researchers, the interaction frame was shifted and the students took ownership of the questions and the responsibility to communicate the findings to the teachers in a staff meeting. The ways in which tools are socially constructed are therefore important in understanding why a tool is dynamic, rather than a static artefact (Miettinen and Virkkunen, 2006).

The use of catalytic tools enables teachers to get to grips with large concepts and fine detail as part of the same enquiry/inquiry cycle. Dewey reminds us that

> *"We are familiar only with things which specifically enter into our lives and with which we steadily reckon and deal. All concepts, theories, general ideas are thin, meagre and ineffectual in the degree in which they are not reflective expressions of acts and events already embodied, achieved, in experience."* (Dewey, 2008/1922, p2)

Teachers can achieve new perspectives on their pedagogy and interaction through inquiry and specifically through the intentional use of catalytic tools. These tools, because they serve purposes related both to immediate action and to reflection on practice (Schön, 1983), are able to provide both an investigative framework within which to design change and the swift feedback necessary to enact it in the moment.

However, teachers tend not to engage in this kind of practitioner enquiry in isolation. Sometimes they are part of research networks within their own institution or in a local or regional network. While these networks vary considerably, many of the longer-lived ones have established relationships with Higher Education settings: practitioner-university research partnerships (PURPs). Section Four explores the role of the university through the lens of my role as university researcher supporting a PURP over seven years.

Section 4: Behind the curtain – what did the university researcher do?

In this section I will attempt to make explicit something that has been implicit in everything that I have written and submitted in support of this doctorate: the role that I have played and the way in which I have represented the University, bridged and translated in my work with practitioners and how I have been in parallel process with the teachers that I have supported. I wrote at the beginning that I was once a teacher: of course I still am, not only because I teach and supervise students in my university and not only because I have a pedagogical role in the collaborative research process but because my training and my professional standards and beliefs are aligned with my colleagues in schools.

A researcher's life: what knowledge and expertise can I claim?

In the introduction I wrote of the unpredictability of the life of the academic researcher in education, dependent always on the next piece of funding. Even senior academics are rarely able to shape the direction of research, driven as that is by a heady cocktail of the political desire to be seen to be doing something different, the 'half-life' of initiatives, particularly those not owned by the practitioners and the selective use of evidence in a profession that is in equal measures science, art and faith-based enterprise. For the contract researcher, then, there is little opportunity to shape from without. Instead, like other practitioners, like classroom teachers, we customise within the parameters of what we are given: introducing a new method of data collection (Wall and Hall, 2008), performing a range of analyses on a data set as well as the time-honoured ones (Towler, Hall and Wall 2009), writing for publication with, rather than about research partners **[10, 3]**.

Some of the projects I have worked on have been high status, funded by prestigious bodies and some 'just' local evaluations, taken on to bridge funding between contracts: all of these have been hedged about with the realities of academic life. It is necessary to design research projects that come close to answering the funders' questions, so the tools used must be pragmatic and complex enough to capture the real processes at work, without eating up too much time and money. The relationships in research projects are generally short and there is limited opportunity to build trust with your informants, so it is necessary (as well as ethically preferable) to be absolutely open about your areas of ignorance and the extent to which you are dependent upon those informants to do your job. Lastly, it is necessary simultaneously to produce accurate and unbiased research reports which nonetheless satisfy the funders and to produce theoretically complex and critically reflective academic articles. When colleagues in secondary schools complain that they have been asked to

drive up standards in public examinations and then are subjected to the yearly taunts in the media that standards must be slipping if more students achieve high grades, I don't say that I know how they feel – because I don't – although I recognise the sense of trying to square a circle.

As a contract researcher, I have taken the next job, not because of my previous knowledge and experience but because of my ability to get a degree of mastery over disparate subjects: the training of nursery nurses; the development of the physics A-level curriculum; the physical design of school buildings and the validity and reliability of learning styles instruments, to give a few examples. The disadvantage of this is that I have had to create within myself an interest in these disparate areas, the advantage is that I started each time with few preconceptions or alliances. For researchers who work mainly at their desks, there is a risk that they will begin to believe that 'all there is to be knowed' has been written up by the 'clever chaps' and that a synthesis of the literature is sufficient. Fortunately, my work has been divided between the desk and the field, where things are messier.

For me and many of my colleagues, the sense of *having been* a school teacher is an important part of our identity as educational researchers. I can get caught up in the complex intellectual puzzles but I always return to the title of a paper I read early on *"And this helps me how?"* (Taylor, Dunster and Pollard, 1999): I want to know how what I have found interesting in an abstract way can be translated into pragmatic strategies for the classroom. Unfortunately, this 'translation work' is the least prestigious of the education research fields, particularly if the translation becomes conversation and the ambiguities and local differences of our many teaching and learning contexts become more prominent. Here, then are the 'swampy lowlands' (Schön, 1987) in which academic careers are rumoured to sink without trace. However, before we even begin to translate, we have to be clear about what it is that we think we know and how we think we know it. I will explore that through the example of my work conducting literature reviews.

Criticisms relating to the quality of educational research are not new (e.g. Hillage *et al*, 1998; Tooley and Darby, 1998) and often consist of academic in-fighting between supporters of different epistemologies, using positivist sticks to beat narratives for their particularity and contrasting rich data with dry figures. This is, of course, a pointless and false dichotomy: we construct our worlds through an interweaving of qualitative and quantitative data, looking for complementarity in order to rationalise our decisions. Both kinds of research, and arguably research which intentionally combines qualitative and quantitative tools and analysis (Onwuegbuzie, *et al,* 2008) are needed for us to make sense of the complexity of classrooms. However, policy makers are increasingly convinced that systematic review and meta-analysis data are the 'gold standard': *"We need more evidence-based policy making, and for that to work we need more evidence."* (Gove 2010). The

narratives of teachers and learners are increasingly treated as secondary to outcome measures, rather than as part of how outcomes can be interpreted. As voices from classrooms are marginalised, there is an increasingly one-sided conversation about research and teaching, in which an emphasis on 'evidence-based' teaching has, over time, been modified in English political discourse to 'evidence-informed' practice (Hargreaves, 1997, 1999b; Elliot, 2001) and an increasing reliance on another false dichotomy between academic and practice knowledge (Baumfield and Butterworth, 2007).

After completing a series of literature reviews: narrative, systematic and a meta-analysis, **[5, 8, 9]**, which broadly speaking recommended the use of thinking skills and discouraged the use of learning styles as the basis for productive pedagogy, it became clear that it is not so simple. Thinking skills approaches have widely varying impacts on different age and ability groups and discussion (rather than a diagnosis) of learning styles can promote learner autonomy and self-belief. If practitioners were going to be told that meta-analysis results were the supreme driver for change, then the simplicity ought to be challenged (Hall and Higgins, 2004; 2005). We pointed out that there are methodological tensions between the criteria of systematic reviewing with the close focus required in generating research questions in these reviews and the holistic, enthusiastic approach of many reports which focus on development work with teachers and learners. Trends in the United States towards a research design that is 'oven-ready' for meta analysis are significantly limiting the kinds of information available about learning and teaching. Moreover, as Slavin (2004) remarks, the policy discourse of a particular kind of evidence based research is running ahead of the educational research paradigm: put simply, there are not very many studies which fit the criteria set by bodies like the Clearinghouse (www.w-w-c.org) and many of these, rather than reporting impacts in authentic classroom interventions are classified by Slavin as 'wierdo lab studies' with small groups, short durations and un-natural contexts. We argued that until we can achieve recognition of and consensus about the strengths, weaknesses and contribution of the various methods current in educational research, we will continue to alternately reify and downplay methods, creating artificial opposition and weakening our ability to convey meaningful messages to practitioners. The boiling down of information through the systematic review and meta-analysis process produces the illusion that the data itself is homogenised, that the various intellectual fruits have made an undifferentiated jam. However, the fruit jam that represents the meta-analysis is not what a practitioner needs. They need to act in a particular context and to make a particular choice about which approach is likely to work for them in their school – or to pick a nice fresh strawberry out of the jam.

The process of literature review is not, as the hyperbole might suggest, to produce definitive answers in a given field but is essentially one of producing better questions for the next round of empirical work by academics and practitioners (Hattie, 2009). These papers (Hall and Higgins, 2004; 2005), presented at national and international conferences, did not find homes in journals: they were judged to be too ambitious in their scope, since they both reported findings and sought to explore their limitations. However, they had an afterlife in our postgraduate teaching and in the content of the face-to-face support sessions in our research partnerships, where teachers had no difficulty in distinguishing between the generalised and the particular. It became easier for me to trust that I had a range of things to contribute to a partnership with professionals: critical analysis of published work; genuine curiosity about the ecologies of different schools and colleges and a range of enquiry tools to support teachers' investigations.

In the field with practitioners: when it works and when it doesn't

In one of my submitted papers **[6]** I made a comparison between a successful and an unsuccessful project in which I began to identify some of the key differences in our experience of the work (Figure 10). These comparisons relate very much to the measurable outcomes of University priority: timely completion, esteem indicators and publications and reflect the sense that we had as a research team that our work was sometimes as unprofitable as others portrayed it. The paper does not fully identify how the process fell short: we always aimed for collaboration and the opportunity to have some feedback loops operating between the practitioners in the field and ourselves as research practitioners but at this time, we located the problem as mainly one of management: we were not in sufficient control of the Sure Start project and the internal management was confused and confusing. So everything would be alright so long as the university team had sufficient control and the role of the researchers was well-articulated and clearly understood by everyone involved.

Communication project **[11, 12, 13]**	Sure Start Local Programme evaluation **[6]**
• On time, on budget	• Delayed, over budget
• Collaborative learning	• Limited collaboration
• Influence on local policy	• No influence on local policy
• Influence on practice	• Limited influence on practice
• Range of dissemination audiences	• Minimal dissemination

Figure 10: Comparison of a successful and an unsuccessful project

Meanwhile, I had become involved in Learning to Learn. This very successful practitioner research project scores very highly on the measureable outcomes: timely completion, influence on local and national policy and practice and a large number of papers, professional articles, conference papers, keynotes and books. Most excitingly for us as a research team, the feedback and collaboration we had sought was there: flexible and responsive communication [4], the development of confident practitioner researchers [1] and the collaborative development of enquiry tools [2]. Yet, the conclusions I had drawn earlier about why the Sure Start evaluation had failed and the communication project had succeeded did not transfer as I attempted to explain what happened in Learning to Learn.

A central tenet of Learning to Learn is the autonomy of individual practitioner enquirers to choose the focus of their enquiry for themselves: the University team actively chose not to set the agenda. This decision stemmed from our collective experience of maintaining research networks - it is very hard for busy teachers to maintain enthusiasm for somebody else's question – and from our recognition that we might not, synthesising literature at our desks and searching our memories of practice, be able to come up with the best questions ourselves. As McLaughlin and Black Hawkins, referring to Cambridge University's School University Partnership in Education Research (SUPER) project, put it:

> "As a partnership, we are mindful of the need to develop ownership, momentum and purchase without unintentionally diluting the prime purposes of the partner organisations" (2004, p.267)

This approach was only possible because the funders, the Campaign for Learning, had a series of flexible enquiry questions. While their original questions focused on whether there was a 'core' of Learning to Learn practice that could be crystallised and 'rolled out', they too became excited by the diversity of approaches across the country and their focus began to shift towards how change is fostered and sustained in diverse contexts and how teachers, students and schools could all prioritise their own learning [7]. While the foregrounding of autonomy and creativity is entirely congruent with the Campaign's ethics and values, it is a testament to them that they never tried to streamline or simplify the project in order to make it an easier 'sell' to government patrons.

In order to retain the ecological validity of the enquiry questions and the motivation of the teachers involved we had to embrace the complexity of the project: the diversity of outputs (85 case studies from Phase 3 Higgins, *et al,* 2007; 91 from Phase 4 including 20 from FE colleges) and the range of questions which clustered under the dispositions framework. These included, but were not limited

to, formative assessment, learning outside the classroom, talk partners, group work, exercise and music as aids to concentration, ICT to support writing, Kagan techniques, learning logs, creative curriculum approaches, students as 'learning detectives' and reorganising classes in vertical age groups or by gender. Outside observers have offered the view that the products of the individual inquiries would have limited relevance outside their immediate context and that we would only be able to measure impact in the project by becoming more traditional and directive in our approaches. While we have introduced more cross-project data collection in recent years, this has been conducted by the research team, not the teachers. We have stuck to the principle that data collection for *our* enquiry questions cannot be foisted onto practitioner researchers busy with their own enquiries.

Learning to Learn could be characterised as a confederation of what Lieberman and Grolnick (1996) refer to as 'progressive educators' and articulating this vision through critical listening and discussion has been crucial to the evolution of the partnerships (Black-Hawkins, 2004). At the heart of this problem is the means by which practitioner enquiry, supported by the university, moves from being that of personal interest, to one that is acknowledged and owned by the community. We used McLaughlin and Black-Hawkins (2004) six models for school-university partnership as a frame to analyse how this occurs (Figure 11).

Model 1	School bound, individual teachers mentored by university 'experts'.	*Email and phone support during the process of an enquiry* *Quick data analysis to enable an enquiry to move forward*
Model 2	School wide supported by a university facilitator.	*Design of enquiry tools to provide data for school agendas other than enquiry e.g. inspection, community development*
Model 3	University as expert bringer of research to the school	*Bespoke INSET support for partner schools*
Model 4	Across schools: individual teachers mentored by university 'experts'.	*Regional INSET sessions on data collection, enquiry tools and emerging research on pedagogy and assessment*
Model 5	Within and between schools supported by university facilitators.	*Links 'match-made' between schools looking at similar areas or using similar enquiry tools*
Model 6	All partners as experts and critical friends to one another.	*Ongoing debates about the meaning of L2L* *Critical challenge to research tools designed or introduced by the University*

Figure 11: Models of school-university partnership and examples from Learning to Learn

Our core issue has been to balance the need for clarity of purpose and shared beliefs that are necessary to sustain a network can be satisfied whilst ensuring that ownership of and motivation for

the research activity within it remains with individual practitioners. Hargreaves (2003) encapsulates the problem in terms of a metaphor of bazaars and cathedrals. Whilst a large stone building like a cathedral has the authority and robustness to accommodate change sustained over a long period, it doesn't have the flexibility and responsiveness to changing circumstances offered by a tent. We have attempted, in many ways successfully, to have elements of both bazaar and cathedral in our project: the rigour of our research training and design processes and the structures of reporting through yearly case studies, bi-annual regional INSETs and poster presentations at the yearly Residential Conference provide the cathedral, while the flexibility around the content of the enquiry allows for the ownership for individuals and the excitement of participating in a heterogeneous network (Hall, *et al,* 2010).

A central aspect of Learning to Learn is the co-construction of knowledge between the university team and the project teachers **[4]**: "*The collaboration is more than the traditional use of teachers as data sources or gatekeepers of data and is about a co-learning agreement"* (McLaughlin, 2004, p129). The mechanism by which this philosophy is enacted within the network is grounded in Stenhouse's 'systematic enquiry made public': all professional learning (including our own) is presented in a similar way and is subjected to the same critical engagement. This could be considered as risky without the systematic enquiry process underpinning the perspectives that are shared: the tight structure that gives rigour to the learning and therefore support the communication process. It does mean that the sharing of experiences, the process of critically listening to contributions and the need to signify equivalency of each contribution is central. The power and translation of this has been exemplified in practice, with the influence of work traced through iterations of the enquiry cycle (Hall, *et al,* 2010). In this way my earlier experience with Sure Start has been both challenged and validated: the university team needed both more *and* less control over a project for it to be successful. In Sure Start, the levels of ambiguity were not tolerable for any of the partners, whereas in Learning to Learn, the reassuring structures of the research design and reporting protocols allowed all of us to be more comfortable with uncertainty. Our uncertainty was also constantly acknowledged and discussed: grounded in face to face communication as a basis for learning from each other, supported through electronic and telephone support between meetings and nested within the authentic relationships that were built between the university and the partner teachers.

The researcher as the focus

This is a very difficult section to write: I am reluctant to turn the focus on myself. The achievements of the teachers and the project as a whole are an appropriate focus, my own role alongside my colleagues seems less so. As in the Wizard of Oz, I want to say *"Pay no attention to the woman behind the curtain!"* (Colleen McLaughlin and Jenny Reeves, 2010, personal communication). Yet I recognise that what we did was vital: brokering the communication, setting up the expectations of one another with clarity and ensuring that they were honoured and being constantly responsive to the sometimes competing needs of the enquiries: each teacher's, each member of the research team's and the funder's. After all my years of encouraging teachers and students to bite the bullet and get interested in (and writing about) process as well as outcomes, I am richly repaid.

What I did can be understood as three interlinking processes (Figure 12) which underpinned every encounter with groups or individuals. That is not to say that the encounters were all the same: I had to take account of the variation in teacher's and groups' capital and tolerance for ambiguity. As I discussed in Section Two, an assessment of the variations in *psychological capital* that individual teachers and groups of teachers bring appears to be important: teachers involved in enquiry are stepping out of their traditional roles into their personal Zone of Proximal Development and as such, they required different levels of scaffolding **[7],** both in person and in remote communication.

Making the partnership contract explicit

Clarity about expertise: mine and theirs

Availability and responsiveness

Figure 12: Key relational roles of the researcher

Individual schools signed contracts with the funders, the Campaign for Learning, to ensure that teachers were released for the face to face elements of the project and were given at least minimal support in terms of time and resources to complete their enquiry and write their case study. The

clarity of expectation about their investment was matched by the bank of resources introduced to the teachers in early INSETs and by the explicit agreement to offer support that was both individually tailored and speedy **[4]**, most emails received a substantive response (more than a holding acknowledgement) by one of the team within 72 hours.   In this way the clarity of the contract and the responsiveness of the team supported the trustworthiness of the project as a whole. It was very much more than procedural compliance, however: my availability and responsiveness was supported and made living to the teachers because of my genuine interest in their work and the process of their enquiry.

However, while these are necessary components, they are not sufficient to generate more than an efficient working relationship. Collaboration is built upon the completion of joint tasks in which all parties recognise the knowledge and skills that are being exchanged. I promoted this by reflecting and crystallising teachers' existing knowledge and skills **[7]** and their developing expertise as practitioner enquirers **[1]**. Teachers were resistant to being praised and recognised and it was important to be genuine; this was facilitated my use of a process of enquiry and reflection (Erskine and Trautmann, 1996) that encouraged teachers to talk in very fine detail about their work, enabling their strengths and enthusiasm to become apparent in a naturalistic way. The considerable investment of time was undoubtedly worthwhile, since I gained insight into contexts and practice that there was no time or money for me to observe first hand and the relationships with the teachers began to strengthen.

I also made a point of being very clear about the extent of my own expertise. This is a difficult balance to strike: there is an in-built tendency for teachers to regard university researchers as 'experts' and to reject or downplay our expertise undermines the authenticity of the developing relationship. It was important to acknowledge that I did know a great deal about particular things and furthermore, that I had access to information and informants and the skill to summarise and communicate to the teachers. That was what I brought to the table and it was an ongoing piece of relational work to 'smash the ivory tower' and to present myself as, yes, a research geek, but an approachable one, one who liked coffee and detective novels and who was still a teacher, albeit in a different set of contexts.

I could count, after a relatively short time, on a warm welcome in person and a friendly response to an email. What was more tricky to negotiate, however, was to make clear what I wanted from the teachers, since I had all this knowledge, access and research experience. My expertise had significant limits, however: I had never taught in a secondary school and my teaching experience (5 years) was receding swiftly into the past. My practice pre-dated the National Strategies and

everything that followed: I had observed them, researched their impact, talked to teachers, curriculum designers, parents and learners but I had never enacted them in a classroom. The reality of current pedagogical experience is what I needed from the teachers, that is what I could not possibly find out alone and making that need explicit, making the point over and over was the basis for the partnership.

Simply stating and re-stating this is, of course, only the beginning: the embedded practices of the project developed from this principle. All public dissemination of findings from the project: conference papers, journal articles and the annual project reports were circulated to the teachers and time was dedicated at each face to face meeting to a genuine discussion, a critical engagement with our interpretations and the (many) ways in which we got ahead of ourselves in theorising about what might be happening in each learning ecology and across the project. This process led to the development of a publishing strategy where joint articles were produced, with the teachers' research largely unedited – five of these have found homes in peer-reviewed journals (including **[10]**). We started to be able to say that the knowledge constructed within Learning to Learn was not a simple translation of Mode 1 to Mode 2 or back again but the development of a common language for learning that is both the product of the collaborative partnership and the means by which it continues to develop (Wall, *et al,* 2010).

The process of knowledge translation for me in Learning to Learn was one of constantly checking out: did teachers understand or recognise the things that I thought I knew from my desk-based work; did I correctly understand their accounts of their work in classrooms; could we find a language to describe similar kinds of learning behaviours in very different contexts? My role at the centre was to search for the connections between individual accounts, broker conversations between teachers and throughout the project to test these connections and to weave the resulting threads of consensus, ambiguity and dissent into something like a coherent narrative. The complexity of this task was sometimes close to overwhelming and the narrative will only ever be part of the story but I believe that our approach has generated an alternative model for research partnerships. The insights from this project are uniquely grounded in a realistic diversity of experience, held together by a common structure that enables us to say something meaningful about the role of enquiry in creating learning communities (Wall, *et al,* 2010).

Conclusion

Teachers perform millions of actions in their working week, some in and some out of awareness. While they are hedged about with inspection and prescription, they nevertheless have the potential to make a significant difference to learner outcomes by making changes in their practice (Hattie, 2009). The purpose of this commentary has been to explore some of the ways in which they do this and how this process can be supported.

Teachers continue to learn about themselves and their practice throughout their careers (Day, *et al*, 2006; 2007) but the context in which they can learn (Cordingley, *et al*, 2005), the form and content of their learning opportunities (Webster-Wright, 2009) and the extent to which they can own the learning for themselves within the political climate (Fox and Reeves, 2008; Day and Smethem, 2009; Leaton Gray and Whitty, 2010) are important variables. My exploration of outcomes in Section Two has highlighted the importance of physical and social context and of inter and intra-personal qualities. Each teacher makes sense of their agency in relation to these interlocking systems and then has the potential to enact that agency. Our experience in Learning to Learn has suggested that this enactment can be effectively scaffolded by using catalytic enquiry tools, which I discussed in detail in Section Three.

In Section Four I have described the structural and relational ways in which I, as the University partner in a research partnership supported teachers in practitioner enquiry as a route to developing fluid expertise (Berliner, 2001). Teachers with fluid expertise have an active commitment to helping others develop autonomous learning skills to take them through their lives. It is too simple to talk about a distinction between privileging content or process: in fluid expertise content and process are intimately connected, each supporting the exploration, elaboration and understanding of one another.

Describing the inquiry process, Ruth Deakin-Crick declares that it *"creates a context for critical subjectivity and engagement with learning and the world"* (Deakin-Crick, 2009, 73). My aim in this commentary has been to explore some of these variables and to highlight my principal conclusion: that the enquiry process, supported by the University partnership, provides for teachers *as learners* a series of opportunities to find some protected space in which to explore their agency and invention through the use of catalytic tools that support pedagogy and research (Figure 7, p.24).
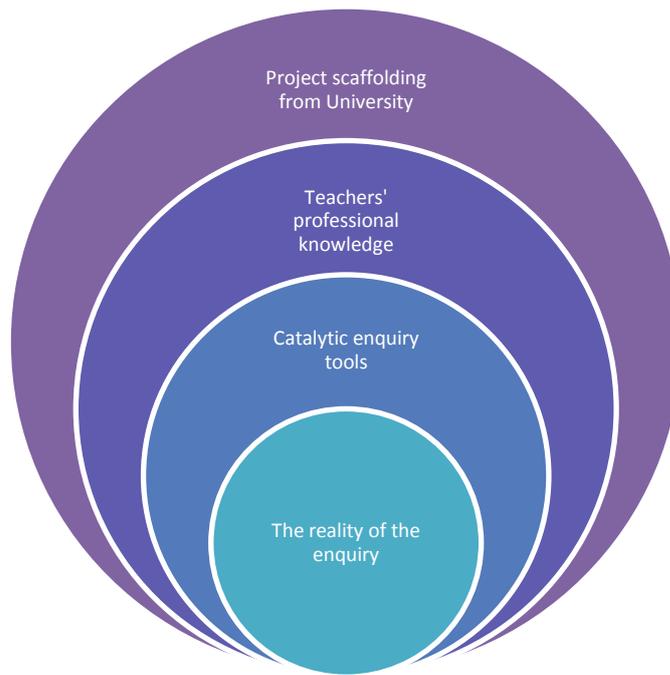
Figure 13: Nesting the factors in research partnerships

The intent of the inquiry shapes the use of the tool and by making the perspective change from what it is that a tool has been designed to do to what it is that the teacher intends it to do, we can see the interaction of key elements (Figure 13). This thesis has been an exploration of how universities and teachers work together to enact change, where the knowledge and skills of the university have to be offered as true gifts, where the gifts are the teacher's to use when and how they wish. The debates around fidelity of implementation in collaborative research (e.g. Castro, et al, 2007; **[8]**) miss the point: since the teachers' professional knowledge is the broker between the support from the university and the catalytic tool, fidelity has to be to the teacher's intent and all of the elements are focused on the centre: the reality of the enquiry.

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