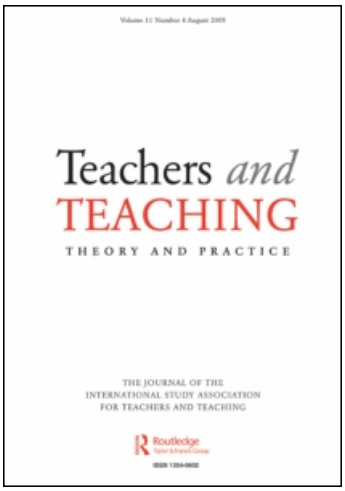
This article was downloaded by: *[University of Newcastle upon Tyne]*
On: *28 April 2009*
Access details: *Access Details: [subscription number 901326439]*
Publisher *Routledge*
Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK




**Teachers and Teaching**
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t713447546

# The road taken: professional pathways in innovative curriculum development

David Leat [a]; Rachel Lofthouse [a]; Sally Taverner [b]
[a] University of Newcastle-upon-Tyne, UK [b] St Thomas More RC High School, UK

Online Publication Date: 01 December 2006

**To cite this Article** Leat, David, Lofthouse, Rachel and Taverner, Sally(2006)'The road taken: professional pathways in innovative curriculum development',Teachers and Teaching,12:6,657 — 674
**To link to this Article: DOI:** 10.1080/13540600601029686
**URL:** http://dx.doi.org/10.1080/13540600601029686

PLEASE SCROLL DOWN FOR ARTICLE

Full terms and conditions of use: http://www.informaworld.com/terms-and-conditions-of-access.pdf

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

*Teachers and Teaching: theory and practice,*
*Vol. 12, No. 6, December 2006, pp. 657–674*

Routledge
Taylor & Francis Group

# The road taken: professional pathways in innovative curriculum development

David Leat[a]*, Rachel Lofthouse[a] and Sally Taverner[b]
[a]*University of Newcastle-upon-Tyne, UK;* [b]*St Thomas More RC High School, UK*

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009

This article describes the phases that teachers went through in their engagement with innovative teaching strategies as part of a school-based research consortium linked to a university department of education in England. The teachers recorded their experiences and responses in diaries which gave access to their dominant feelings and concerns during the innovation. The diaries were analysed to investigate changes in the entries over time. The six phases were: *initiation, novice, concerns, consolidation, expansion* and *commitment.* The analysis also indicates the changing nature of professional support that was important during each of these phases. The conditions that characterized the 'working space' created by the teachers are discussed and particular emphasis is given to the fact that they collaborated with each other and with outside agents. Evidence from later interviews is used to suggest that these conditions have had a lasting impact on the schools. Further these conditions are related to the concept of social capital and the school research coordinator exploiting a 'hole' in the organization. It is argued that social capital among teachers and school leaders is critical to large-scale change.

Keywords: *Collaboration; Innovation; Professional development; Social capital; Thinking skills*

## Introduction

In the last 25 years educational policy and debate has become highly politicized—a turn of events that places schools and teachers on the receiving end of a process that is constantly seeking to discover means to ends. Currently those ends, especially in England, are couched in terms of raising the standard of pupil attainment. Indeed, Helsby and McCulloch (1997) see the National Curriculum in England, which was introduced in 1988, as part of a worldwide shift in control of education away from teachers and towards the state in order to enable the restructuring of economies.

*Corresponding author. Department of Education, University of Newcastle-upon-Tyne, St Thomas Street, Newcastle NE1 7RU, UK. Email: djkleat@ncl.ac.uk

ISSN 1354-0602 (print)/ISSN 1470-1278 (online)/06/060657–18
© 2006 Taylor & Francis
DOI: 10.1080/13540600601029686

In this charged atmosphere there are two factors which should concentrate the mind. The first is that curriculum change is notoriously difficult to enact (Sarason, 1982; Black & Atkin, 1996), and the second is the effect that intensification is having on the profession. Simultaneously, there is a groundswell for change in professional development practices with regard to collaboration. These are signalled by a number of government initiatives in England and by a kernel of research interest.

In England in the Department for Education and Employment (2001) publication *Learning and teaching,* a new emphasis was given to the value of coaching, mentoring, and teacher collaboration as a form of professional development. Research on cognitive apprenticeship (Lave & Wenger, 1991; Wenger, 1999) has made communities of practice a template for some initiatives in professional development. Thus, studies have appeared describing deliberate attempts in the US to foster communities of practice (Sullivan *et al*., 1998; Thomas *et al*., 1998). The National College of School Leadership (www.ncsl.org.uk/) in England has introduced a substantial Network Learning Community programme (www.ncsl.org.uk/index.cfm?pageID=nlc-index) to promote multi-level learning leadership within and across schools and networks of schools. This change in professional development practice focuses on collaboration as a form of professional development and communities of teachers working to solve problems and improve practice. Cordingley *et al*. (2003) have produced an international review, *The impact of collaborative CPD on classroom teaching and learning,* as part of the work of the EPPI (Evidence for Policy and Practice Information) Co-ordinating Centre. As demonstrated in these studies, the impact on teachers of collaborative CPD (continuing professional development) included:

- Greater confidence.
- Enhanced belief amongst teachers of their ability to make a difference to pupils' learning.
- The development of enthusiasm for collaborative working, despite some initial concerns about being observed.
- A greater willingness to try new things and change practice.

Collaborative CPD can therefore be seen as a cornerstone of educational reform and curriculum change.

The identification of 'confidence', 'enhanced belief', 'development of enthusiasm', and 'willingness to experiment' hints at some liberating social interaction that can bring people closer together and change circumstances. Indeed, the faith placed in collaboration as a process for school improvement implicates some substantial social process at work. Social capital with its emphasis on trust and reciprocity may be an important concept in understanding how such collaboration accrues such strong benefits.

## Context

The purpose of this paper is to explore the patterns in teachers' thinking and to conceptualize the conditions that supported the actions and interactions of a particular

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009

group of teachers. It is through the descriptions of and theorizing about such conditions that one is better able to provide such a platform for others, as there is current concern to create more appropriate professional development models (Erickson *et al.*, 2005; DfES, www.standards.dfes.gov.uk/primary/wholeschool/learning_networks/).

## Professional development

As Zeichner and Tabachnick (1981), Calderhead and Shorrock (1997), and others have found, change and professional development must acknowledge the importance of teachers' beliefs and should be designed to provide conditions in which teachers can reflect on, question and explore their beliefs. Teachers are not ciphers or technicians; their motivation is fundamental. If an innovation accords with beliefs it is likely to be adopted and accepted, but if it jars then it is rejected. Thus, the 'substantial self' (Nias, 1989) of the teacher is an important determinant of the success of change.

In a study of the effectiveness of numeracy teachers (Askew *et al.*, 1997) the most effective teachers were found to have a particular set of beliefs surrounding making connections within and beyond mathematics. These teachers were more effective than those with beliefs centred on transmission of knowledge or discovery learning. There are two important consequences of these propositions. The first is that change that is 'unpopular' with teachers faces an uphill struggle to be embedded in teaching. Change, therefore, draws advantage if it connects to constructs that motivate teachers. The second is that those responsible for change need to provide opportunities for teachers to discuss their experiences, feelings, and the goals of the innovation. Ponte *et al.* (2004) describe a research project in which teachers engaged in action research facilitated by teacher educators. When left to themselves, the teachers focused primarily on what they planned to do—what the authors term the technological domain of knowledge (Riedel, 1977).

The development of trust between the various participants is critical in successful curricular and instructional innovation. In research on social capital in large organizations (Burt, 1992) some managers, described as having few peers, were able to explore holes in organizational structures and draw on informal networks to create information flows that the organization did not normally stimulate. These holes are easy to find in most secondary schools: they lie between departments that have no language to discuss teaching and learning. They are also to be found between senior managers who assume responsibility for the quality of teaching and learning, and teachers, who have most of the (often tacit) relevant expertise. What provides the glue in this interstice is trust.

Strong lateral trust, with weak vertical trust can result in resistance to leaders. Hence, it is essential that the relationship between teachers and leaders be such that there is provision of outlets for the emerging knowledge and ambition generated by teachers in the expansion and commitment stages of innovative curriculum development. Hargreaves and Dawe (1990) identify some subtle differences in culture that can make all the difference to the nature and outcomes of collaboration. They contrast technical coaching and peer coaching: the former may be characterized by

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009

contrived collegiality where interactions are driven by managers and the task is to implement a pre-set curriculum. Peer coaching, on the other hand, rests upon a collaborative culture that is characterized by openness and trust, and both supports and encourages teacher development. By implication such collaboration requires high levels of lateral trust.

## Thinking skills curricula

Thinking skills have gained some prominence as one of the means to improve educational outcomes internationally (McGuinness, 1999). However the implementation of teaching thinking skills continues to be a halting and patchwork process. As a style of teaching, a thinking skills curriculum involves offering open but challenging tasks to pupils—tasks that are usually tackled collaboratively with an emphasis on students using their existing knowledge to tackle the task and construct understanding. Another characteristic feature is a press on awareness by pupils of thinking as well as social processes and substantive concepts. This is often accompanied by the introduction of a language to bring them to the forefront of consciousness. These features help to explain why some teachers find the classroom realization of such a style problematic (Leat, 1999).

In England, the revised version of the National Curriculum (DfEE & QCA, 1999) for the first time included 'thinking skills' for all curricular areas related to the teaching of 11- to 14-year-olds or Key Stage 3 (KS3). The subject strands of the KS3 strategy (www.standards.dfes.gov.uk/keystage3/) variously give some attention to a set of prescribed 'thinking skills': *information processing*, *reasoning*, *creative thinking*, *evaluation* and *enquiry*.

However, the backdrop of the current study came a little earlier when there was no such government imperative. In March 1998, the Teacher Training Agency funded the North East School-based Research Consortium (NESBRC) for a three-year project. The Teacher Training Agency has statutory responsibility for both initial and in-service training of teachers and the wider school workforce. A primary goal of this initiative was to encourage teachers to engage in and with research so as to provide evidence about students' achievement (Cordingley & Bell, 2002). This initiative involved personnel from six secondary schools, the three local education authorities (LEAs) from which those schools were drawn and Newcastle University's education department. The main focus of the consortium was to investigate the effective implementation of thinking skills.

## Methods

Within the NESBRC, a particular aim was to explore the cumulative effect of collaborative implementation on individuals' thinking and planning. A number of research methods were employed including the keeping of teacher diaries.

Not all schools used this particular approach from the beginning of the project; indeed, this paper draws on the diaries from just one school (Bridge View). However,

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009

as teachers from across the consortium met to share their experiences, two other schools decided to introduce diaries as part of their data collection. It should be noted, too, that a variety of support mechanisms were available to the teachers involved, so the diaries were more than a research tool, they were a means of communication.

Within Bridge View, eight teachers kept diaries from subjects as varied as art, English, geography (two), history, modern foreign languages and mathematics (two). All were issued with books in which to make their entries and they were encouraged to make these at least every two months. In practice, the entries were made as individual teachers reflected on their planning for particular thinking skills lessons, their reactions having carried out the lesson and their broader experience of the innovation. The school research coordinator for the project was pro-active in encouraging their completion. She worked in the school as a head of department and had a half a day a week in which to coordinate research and development activity.

The teachers met formally every month to discuss and explore their experiences, but they also tended to interact and support each other in various combinations on an informal basis. So for example two of the teachers were trained as peer coaches and two of them coached one other teacher each in the group. During the course of the diary keeping, they had three 24-hour residential events, and various members attended other NESBRC meetings at which they met other consortium members. The HE staff also visited the school at various times for meetings requested by the teachers. The teachers were also part of some subject networks and HE course groups which at times discussed the work that they were doing. The tenor of the group was always exploratory; questions and requests for help arose naturally, and, although some teachers were more experienced than others, support was supplied on an ad hoc basis. The school coordinator read all the diary entries and used them as a basis to discuss, identify, and support the professional development needs of individuals as well as the whole group.

Two of the university staff analysed the diaries. This was a broad enquiry at this stage looking for patterns and questions. The analysis proceeded through the following stages:

1. All the diaries were read several times.
2. Meaning segments or chunks (segments of text which have self-contained meaning) were identified in four of the diaries.
3. Considerable time was spent by two researchers devising categories (Glaser & Strauss, 1967; Strauss & Corbin, 1990) from the meaning segments until saturation was reached and no new categories emerged (this was helped by adding positive, neutral, negative subcategories to many headings). These categories were grouped broadly into initial reactions (e.g., knowledge of thinking skills), comments related to planning and forthcoming lessons (teacher questions), reflections on particular lessons and events therein, sources of support, learning or stimulus (e.g., video of lessons, departmental discussion) and broader, generalized reflections.

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009

4. All the meaning segments in all the diaries were then classified.
5. One researcher produced mind maps (Orland) for each teacher, which encouraged the view that there were changes over time in the diary entries.
6. Through a visual analysis of coding sheets and the mind maps, patterns were identified and discussed which led to classification of the phases. For example negative or concerned comments about planning tended to occur early on and identification of sources of support tended to occur later.
7. This led us to a re-analysis of the diaries to identify quotes (usually longer than the meaning segments), which characterized certain phases.
8. The phases have been tested for validity with a variety of audiences including some of the original teachers.

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009

## What we learned

The diaries show some general patterns that can be described in six stages. Some individuals do not show evidence of all stages. For some, certain phases come earlier than for others depending on the speed that classroom experimentation was tried. However as most of the group did interact in a number of venues, their interaction stimulated a certain synchronization. We mean here, for example, that one person's action had an effect upon the others. Furthermore there is, almost inevitably, some variation within the stages reflecting both individual differences and the extent to which each person interacted with the 'team' and team events.

## Phase 1: initiation

In their early entries the teachers reveal something of their motivation for joining the research group. Some express a prior commitment or favourable disposition to teaching thinking skills. These committed individuals have beliefs about teaching that align with the philosophy or practice of teaching thinking. There is a strong undercurrent of desire to see pupils being more independent and autonomous in their thinking and their work more generally. The creation of the group appears to provide an outlet for them. An art teacher describes her interest as follows: 'I think there really is great potential for improving pupil performance through improved thinking skills and questioning techniques'.

She goes on:

> I would like to see pupils' confidence raised about their own solutions to practical problems and their responses to other work. Too often a lack of confidence leads them to reproduce symbols or accepted solutions instead of independent, original, personal ideas and outcomes.

One of the maths teachers was equally enthusiastic:

> I look forward to teaching CAME [Cognitive Acceleration through Maths Education] activities as I anticipate my Y7 group will relish a challenge and enjoy a different type of lesson. I am enthusiastic at the moment as I expect the 'Thinking Maths' approach will

> encourage the students to develop their own approaches to solving problems, rather than waiting to find THE RIGHT ANSWER—supplied by me, all too often. (Capitalization in original)

For the history teacher, who had more experience of teaching thinking skills than most, there was an expressed dualism in her interest in both pupils' learning and her own teaching:

> My expectation of this forthcoming project is that it will challenge my perceptions of both the way I teach and the way pupils learn in my lessons. … I think one of the ways Thinking Skills does that is by getting pupils to recognize and reflect on how they think. … I am prepared to contribute in whichever ways are necessary and to work together with the other teachers as a team. I am willing for my style and method of teaching to be analysed and criticized (constructively!) and to change those aspects which are less successful.

But for the English teacher involved there was greater uncertainty, which required some clarification before the motivation to be involved developed:

> Having attended several Thinking Skills meetings I now believe its rationale is to promote better more effective teaching and learning.
>
> The notion of transference of skills excites me. To be able to equip pupils with the confidence to approach difficult tasks across the curriculum would be a great achievement …

In addition she pays tribute to the atmosphere offered in the innovation group: 'Moreover I found their candour refreshing'.

One of the geography teachers, however, displayed ambiguity about the innovation:

> I get the impression that none of us are entirely sure as to what we're supposed to be doing. … It is too long winded (my view) in that much of the work is not completed due to the excessive work done per topic which often struggles to fit in with deadlines imposed by the school (e.g. Y8 reports) and outside i.e. syllabi + exams.

The gravitational pull of the innovation was increased by the involvement of the other partners, particularly the university as there were some strong personal links between university tutors and individual teachers through initial teacher training courses. The university with its research interest therefore added some benefits, which almost certainly increased the attraction.

## Phase 2: the novice phase

This phase coincided generally with the teachers planning and/or starting some classroom experimentation. One of the evident reactions is a surge of enthusiasm generated by a positive response from pupils.

One of the maths teachers is typical: 'Pupils were motivated (may be just a novelty factor) and pupils of low ability felt sufficiently confident to contribute'.

However in parallel with this excitement, there were anxieties which centre on the desire for practical help with devising materials and planning lessons. For example the art teacher wrote:

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009

> I've started reading some material on thinking skills, but I'd love to find a course which I could do which would give me some confidence that what I am planning is appropriate. … I feel I'm jumping from one thing to the next at the moment and wondering if I'm on the right track.

This shadow also casts itself on the English teacher:

> Optimism aside, I am slightly apprehensive about resources and availability. I appreciate that these skills are cross-curricular and would greatly value some mentoring to help me and my department get started.

This is reiterated in a later entry: 'It is very difficult to start from scratch and I certainly need a springboard to help me get going. (I'll definitely ring Marie tomorrow) … and ask Ian or Claire to be our coach'.

However the hesitation was quickly overcome:

> I decided to try using 5Ws to extract information from a text. … I did attempt a debrief. … Most of the class were fairly puzzled by this, suggesting that usually teachers are more concerned with the answers than the questions. I feel better for at least attempting a start myself however I would really welcome the support of a coach/mentor.

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009

## Phase 3: concerns

It seems fairly typical that after some initial excitement at using the thinking skills approaches and their positive impact on pupils, both teachers and students might arrive at a plateau and not appear to move from it for a while. Perhaps a reasonable analogy is learning to ride a bike where there is a surge of confidence that comes from staying upright. However at some point, there may be the desire to steer well, take corners at speed, do sliding stops, ride with no hands, or do smooth gear changes. We had several examples of such seeming halts throughout our inquiry and ascribe these to concerns about where they were heading with the new curriculum and how it might be affecting their instruction and their relationships with other teachers.

The English teacher begins to express some frustration at her inability to make the best use of students' thinking and that she wants help to do this:

> I need to choose questions more carefully to introduce more ideas from pupils. I don't think I spent enough time unpacking their thoughts and ideas—not long enough spent on debriefing. I'd love some constructive criticism on this (video) tape.

Some of the teachers' reflections evidenced doubt about their personal efficacy and performance. One of the maths teachers expresses this thus: 'I have reservations about whether I'm doing it correctly'.

For the MFL teacher, there was angst about over-reliance on others along with the concern that she could not be effective without their help:

> … although I did contribute ideas [to the lesson plan] I relied too much on my colleagues for the more specific details of the lesson and that had I done it on my own it would have been much less of a thinking skills lesson and not so effective.

In addition, perhaps because the English system places great store on short term, bite-sized learning gains, anxiety seemed to well up over what is being achieved: 'Did they actually learn anything that they didn't already know?'

It is worth noting that concerns are expressed even when lessons are not disasters. It may be that part of the anxiety in adopting a whole new metric for self-evaluation is often accompanied by some seismic shifts in beliefs about teaching as the notes of one of the geographers demonstrates:

> Work went well + kids discussed issues. … However I still feel very unsure about their ability to remember these points and use them as examples in answering questions.
>
> I would feel more confident if they had something on paper for them to refer back to, although this wasn't really appropriate for this lesson.

One of the English teachers saw a gap opening between herself and her subject colleagues. 'Tonight was the meeting of the … group. Although I feel fairly clued up I think other members of my department required more practical information and left feeling none the wiser'.

Being responsible for the development of colleagues was an issue, too, for the art teacher: 'X has been working with Y10 and has mixed feelings about the results'.

For one of the maths teachers the problem arose with details of the lesson procedure:

> Ran out of time! Lots of things didn't go to plan. An important source of confusion was the term 'length' … Tape measures created problems—they weren't long enough, and the pupils needed lots of help to use the measures properly …
>
> I don't feel that they were particularly stretched by this particular task—or quite frankly—that they were particularly interested!

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009

## Phase 4: consolidation

Given the history of difficulties in implementing pedagogical and curriculum reform, it is significant that all but one of the teachers actively continued their active use of the innovation. This is in large measure attributable to two factors, their collaboration and the other forms of support available. Their confidence returned as some of their issues are resolved and as they gain a measure of their own progress. The history teacher was particularly struck by comparing her work with that of others. Seeing her own progress in this light boosted her self-esteem:

> My perception of where I am with Thinking Skills seems to have changed considerably since my last entry. This has been influenced mainly by finding out what other schools in the consortium have been doing. I just haven't realized how far we've progressed since last year. Talking with people makes it clear that I am much more familiar with Thinking Skills jargon e.g. debriefing, metacognition …

An entry in the English teacher's diary shows how such comparison informs her practice and, thus, moves her through the tension of adopting the new curriculum and accompanying teaching strategies: 'Sounds great but I wondered how one might

put this into practice. The videos [that] several colleagues showed, provided me with ideas and possible activities/strategies'.

This learning through collaboration (and comparison) was epitomized by a series of 24-hour residentials starting on Friday evening after school. A particular feature of these get-togethers was watching videos of lessons taught by the members of the group. One of the maths teachers described their value as follows: 'Weekend away was very useful—I am much more sure on what TS involves and aims to do, as a result more keen to teach and discuss thinking skills'. The 'more sure' reference is an indication of reassurance and growing confidence, and the words 'more keen' are evidence of the reinforced motivation.

Another teacher highlighted the videos as part of a broader package that included specific coaching on thinking skills. Coaching training had been provided by the university and taken up by three of the schools. Three teachers were operating as coaches in Bridge View:

> There is no doubt in mind that this is the way to do it—to share ideas and resources, to try things out and narrow down on things till you get them right through coaching and discussing videos. You feel that everyone wants to learn and it is not just in a department. The coaching has been absolutely brilliant.

The growing momentum of the group is reflected in the words 'You feel that everyone wants to learn'. The collaborative nature of the learning is re-emphasized and recurs yet again in an entry by the history teacher: 'To actually sit down and discuss the work with other teachers is the best way of coming to an understanding of it'.

The network of support, however, was not limited to the school's internal resources. As one of the earlier quotes mentions, consortium meetings provided stimulus and some members of the group were involved in higher degree modules. One of the maths teachers, for example, was attending a course on a new maths curriculum: 'Have attended a number of sessions at the University now, I feel that they are paying real dividends. It is reassuring to discuss issues with other maths teachers'.

The effect of such events and occasions can be summarized as follows. First, they provided practical advice. Second, there was a sharing of practice and the development of a common professional language. Third, there was the assurance of knowing that others shared similar beliefs and ambitions in relation to teaching. Finally, it helped create a sense of momentum and validity for the enterprise.

## Phase 5: expansion

In this phase, thinking shifts beyond classroom practice and begins to connect to wider agendas. These can vary. One of the geography teachers saw some light: 'In this lesson I saw how this particular activity could enhance pupils' understanding of decision making both in the classroom and "out there"!'.

For some of the teachers this shift is not just about making connections in their thinking but also about absorbing some of the new thinking into their routine practice. There is an accommodation. This was evident for the art teacher:

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009

> I feel I've changed my own approach quite a lot now outside of thinking skills lessons. I mean I spend more time on whole class and group discussions at the beginning and during assignments—I think the shared experience helps the less able pupils to see greater possibilities and the more able reason and evaluate more effectively.

This shift provoked a desire to follow some emerging thoughts with wider reading:

> But my main aim (before the end of the year) is to get to grips with some reading over the holidays and make use of the university library.

> We will need to change our assessment as we are telling them that we value their thinking but then we give them tests and marks for remembering.

### Phase 6: commitment

This last stage is presented more speculatively than the other phases have been. As only half the teachers showed signs of this phase, it stands on less evidential ground. However, its significance is potentially deep to the creation of professional identity.

While expansion represents a growing awareness of the implications for teaching and learning of their classroom experimentation and could be considered a desirable goal for curricular innovation, we saw that for some teachers, there seemed to be a pronounced shift in identity that was often brought on by an opportunity to reflect on their experiences and to clarify beliefs. Such opportunities included coaching others, contributing an in-service training session in their school or beyond, writing for a professional journal or report, representing the school at a (TTA) project meeting, even being filmed for a Department for Education and Employment video. In these contexts, the teachers are called upon to describe what they have done and its impact on their practice. We theorize that such experiences coming on the heels of successful use of the innovation may help them to see themselves, their teaching, and their students' learning in a new light. One of the maths teachers explained:

> The new curriculum lessons have really made me think about my practice—the questions I and the pupils ask, as well as the quality and importance of discussion in my lessons. Maths has traditionally been viewed as a subject that can be learned in silence, examples on the blackboard followed by exercises, but Thinking Skills has reinforced my view that learning is also a social skill, many things can be absorbed by discussion with other pupils as well as myself. One other change that I am placing a greater emphasis on the PROCESSES the pupils use to obtain a solution to the problem, rather than the solution itself. We now use these processes as a basis for discussion and evaluation.

Having reached this threshold there is, in effect, no going back. The new practice is now embedded in the teachers' thinking and it marks all their thoughts about teaching and learning. This is not to say that they reject other approaches but their new identity is a reference point. This identity is not just about teaching but significantly about their role in the system. They are much more likely to act as advocates for the innovation and more likely to have developed a greater sense of agency (Edwards & D'Arcy, 2004). One of the history teachers, who became one of three or four leading advocates of the work, was particularly conscious of the change in her perspective:

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009

> It's really impacted on my career, at first I was just an ordinary classroom teacher not knowing much about the wider world of education and suddenly we are getting offers to go and disseminate thinking skills in LEAs and at TTA conferences and so on, and that's opened my eyes to see who else is involved in education … what is going on.

## Discussion

As the research of Sarason (1982) and Black and Atkin (1996) makes clear, innovation in teaching is extremely difficult. The fact that all the teachers in our study had been infusing teaching thinking skills approaches was some achievement in itself. However as classrooms are complex systems, one has to expect that there will be unexpected and unwanted outcomes. Pupils are learning to adapt to new conditions. Most of the teachers hit some choppy waters. Thus, it seems reasonable to infer that in many school contexts in England many teachers might not proceed to change their practice and grow professionally in the way that these teachers did. It is one thing to believe that an innovation can help deliver outcomes that are desirable, it is quite another to enact the innovation in the classroom. It is this impasse that is referred to by Black and William (1998) when they say that:

> What they [teachers] need is a variety of living examples of implementation by teachers with whom they can identify and from whom they can both derive conviction and confidence that they can do better, and see concrete examples of what doing better means in practice. (Black & William, 1998, p.16)

Without help teachers can develop what Wagner (1987) has termed 'knots'. These occur when teachers attempt, in vain, to pursue goals or strategies, leading to anger, anxiety and frustration. However, this was a consortium with planned infrastructure. As well, considerable and credible help was available. Such support was available particularly through the school coordinator who was a leading figure in the 'Thinking through geography' group (Leat & Lin, 2002). It is easy to underestimate the importance of such assistance close at hand.

There are some signs in the data analysis that the school and teachers studied were evolving a powerful climate for change that impacted on their thinking, beliefs, classroom interaction, and professional interaction. We ascribe the changes in these teachers' attitudes and practice not only to the support system that evolved in the school but also to the structure of the innovation that encouraged collaboration within the school and across the consortia of schools.

In their role as evaluators of the TTA initiative, Simons *et al.* (2004) identified three stages in the consortia:

- *Stage 1: the personal.* Here the teachers focused on their own understanding. They gathered data and analysed it, reflecting on classroom practice. They arrived at generalizations, the ostensible relevance of which was limited to their own practice and their own teaching situation.
- *Stage 2: the collegial.* In this stage, research is designed, conducted and analysed in a group setting in which the individual teacher has a degree of professional intimacy in relation to others—typically a group of school staff.

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009

- *Stage 3: the collective.* By this stage the group had developed sufficient confidence to work with others across the consortium in conducting research and sharing experience with those in other schools. Now the research assumed more of the character of evidence as commonly recognized, as they collectively explore its relevance for a wider range of settings.

Our data provide an overlay from the early part of one school's activity, providing a much finer grain of detail. Thus, our data suggest that even from the earliest stages, the teachers at Bridge View were drawing on support from a wider geographical and organizational milieu. They were not alone; their process unlike that of the other schools (Simons *et al*., 2004). Their actions were deeply rooted in collaboration that created sufficient confidence to take risks. In this respect, they seemed to know intuitively the importance of what Fullan (1999, p. 43) describes as 'the deep meaning of outside collaboration'. They may have been facing inwards when they were focused on their practice, but they were simultaneously reaching outwards to draw in support. Such support is a precondition, we believe, for elaboration of professional identity and is acknowledged as such in Simons and colleagues' (2004) report on the consortia when they note that 'the overwhelming testimony of teachers that the value of the Programme for them was the rediscovery of their professional confidence in a climate of low trust' (p. 350). This was not a typical curricular innovation such as those studied by Hall *et al.* (1977) and Bitan-Friedlander *et al.* (2004) where the spotlight was on teachers working substantially in isolation on an innovation organized by outsiders. And, while the seven stages described by Hall *et al.*—awareness, informational, personal, management, consequence, collaboration and refocusing—hold some similarities to the phases described here, we are more concerned with conditions where teachers assume ownership of change on the basis of some analysis of personal and collective needs.

However, we do not discount the importance of addressing teachers' personal belief systems. We surmise that the changes that these teachers embraced had to do with the way in which the innovation was situated in a collaborative nexus. They did not focus on what they wanted students to achieve, nor on critical questions about their teaching and its effects. It was the facilitation of the outsiders, particularly through questioning, that spurred an entry into consideration of Riedel's (1977) domains of empirical and ideological knowledge. This was characterized by such teacher comments on their learning as 'to view practice from more perspectives' and 'think about what they are doing more'. The expansion and commitment phases indicate that some teachers at Bridge View did reach the point of examining their values and beliefs.

It follows, therefore, that a second condition extant in the consortium and in this school in particular was the freedom to determine the pace and direction of the innovation. This initiative started before there was any government urging to teach thinking skills. Teachers were innovating and not implementing. Each teacher was untangling the most pressing issue in his or her personal classroom ecology. Furthermore, the unit of change was small: one lesson at a time—a very human scale (Leat

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009

& Higgins, 2002) that, we believe, promotes the advantage of the locus of control residing with the individual and the group. In this situation, the teachers were free to join the group, leave (as happened), or stay out.

Here the teachers had every encouragement to adapt ideas to their classes. This was not a setting where top down change with its lack of sensitivity to context (Cousins & Leithwood, 1993), contrived collegiality (Hargreaves & Fullan, 1992), and bureaucratic procedures dominated. It, therefore, stands in contrast to Helsby and Knight's (1997) finding that the National Curriculum had encouraged professional development to become instrumental with a sharp focus uniformity of implementation with little regard for individual concerns. The sharing of videos helped ensure that thinking about practice was deep and at times disconcerting. These teachers were not 'productive thinkers' like those described by Huberman (1989). They had substantial control over the innovation.

The diaries highlight a third condition which is a kind of practical support that is valued in initiating and pursuing change, and which recognizes that needs change over time. This condition is very concrete and easily overlooked. Teachers need such practical support to help them plan lessons that are different from what they have done before, to get advice that ensures a greater chance of success by cutting down on the element of trial and error and the feelings of disappointment that so often accompany slow change. These teachers needed help devising resources, planning instructions, and they needed advice on debriefing learning experiences. Incrementally they needed to be able to discuss and reflect upon what they had experienced and to share perspectives. Finally, they needed opportunities to extend and expand their learning. Such practical support, as Burden and Nichols (2000), Wideen *et al.* (1998), Cordingley *et al.* (2003) and others have noted is hardly ever provided in the normal diet of in-service training that concentrates on generalized instruction and awareness-raising. Such practical support is important for psychological as well as practical reasons.

Huberman (1995) cites Wallach *et al.*'s (1962) theory group dynamic theory to suggest that experimenting groups of teachers are more likely to take risks than individuals without mutual support. As Huberman notes, 'since what is being tried out is new to all, temporary difficulties, even failures, are socially legitimate'. Isolation is, in effect, debilitating.

## Conclusion

It seems that teachers at Bridge View cleared a working space (Clement & Vandenbergh, 2000) for their professional learning. In this space they created certain conditions which were critical for that learning. The group of teachers assumed many of the characteristics of what Reeves and Forde (2004) describe as an 'activity set': they were a group pursuing a goal; they developed a set of terms or specialized language in relation to the teaching thinking skills curriculum and research. This afforded them a mode of communication that set them apart from others. Furthermore, they developed a specialized tool, video, that was emblematic of both an approach to professional learning and a boldness that others in the consortium lacked. They embodied

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009

a point of view, which was imprecise and uncertain in the early stages but became more tangible with time. The goal, language, tools and point of view helped to identify them both to themselves and to others.

The legacy of this innovation at Bridge View (and, to an extent, across the consortium) can be interpreted as social capital (Bourdieu, 1986). Ecclestone (2004) sees social capital as being comprised of 'actual or potential resources that individuals can mobilize through membership of organizations and social networks'. These resources include trust and reciprocity and they are intensely bound with establishing, consciously or unconsciously, social relationships that can be used in the short or long term. It is the centrality of trust as a sub-concept in the field of social capital that is compelling in making a connection with this research. However Baron *et al.* (2000) have cautioned against the over-enthusiastic application of the social capital concept. One of the recurring conundrums in the field is whether social capital is the cause or the effect of a positive condition, with a resulting circularity of argument.

Our hypothesis is that, although all of the schools had various degrees of prior advantage (but not all had high prior attainment), the consortium activity generated social capital that has since been drawn on further by the schools. The research coordinators were crucial in this respect. They played active roles in supporting individual teachers and developing collective identity, purpose and collaboration. If, as in the case of Bridge View, there was a rapid acceleration in the practice and thinking of a group of staff, it is, we suggest, as a consequence of the efforts of the coordinator, who found what Burt (1992) describes as a 'hole' in the organizational structure which enabled her to draw on informational networks to create information flows that the organization did not normally stimulate. In an interview (DfEE video, 2001) the Bridge View research coordinator had a clear appreciation of this phenomenon:

> One of my favourite things has been the teacher residentials … We have gone away with just about six of us to begin with, and probably aided with copious amounts of gin, we've had a great opportunity to watch the videos together and sharpen our practice. What's been most important about that is developing trust and being away together and talking intensively together and that is exceptionally powerful.

The importance of developing social capital is growing if ambitions for educational reform are to be realized. Although England is perhaps notable for the national scale and intensity of its government reform efforts, the issues arising are relevant, in degrees, to all societies seeking to recast their public school systems. In the interim report (by a Canadian team) of the evaluation of the National Literacy and Numeracy Strategies (NLNS) for primary schools in England, Earl *et al.* (2001) deliver a not so subtle warning:

> NLNS are unlikely to be sustained in the long run unless teachers, head teachers and LEA personnel feel a sense of ownership and responsibility for the goals that they represent. As the Strategies move beyond the initial awareness and implementation challenges, it will not be sufficient to have high quality training and strong support from head teachers. In addition, it will be essential to create strong professional learning communities at the school level. Teachers' individual knowledge and skills must be put to use, not only in individual classrooms, but also across the school as a whole. A strong professional learning

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009

community includes shared goals for pupil learning, collaboration and collective responsibility among teachers, reflective professional inquiry and opportunities for staff members to influence the school's activities and policies.

Can senior leaders be educated for this role on a large scale? Superficiality is a particular danger and external accountability pressures can be so pervasive that school leaders are drawn towards meeting curriculum and assessment requirements. O'Brien and MacBeath (1999) in reporting on Scottish experience of developing a programme for staff development coordinators summarize some principles for staff development which seem pertinent:

- Development will only be effective within a supportive cooperative ethos at least at some level (school, department or classroom) but preferably at all levels.
- Those responsible for development must have a genuine understanding of the context in which teachers work—as teachers perceive it.
- Teachers need to be recognized as people at different stages in their personal and professional life cycle.

The challenge of these principles is very real. These are not checklist points to determine whether an in-service education event has been organized effectively. They are subtle, deep-seated and systemic. A rare intelligence and sensitivity is needed to put them into operation. We think that our investigation of Bridge View and the allied consortium provides some critical insight into how such ambitions for educational reform can be realized.

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009

## References

Askew, M., Rhodes, V., Brown, M., Johnson, D. & Wiliam, D. (1997) *Effective teachers of numeracy: final report to the Teacher Training Agency* (London, Kings College).

Baron, S., Field, J. & Schuller, T. (2000) *Social capital—critical perspectives* (Oxford, Oxford University Press).

Baumfield, V. & Butterworth, M. (in press) Developing and sustaining professional dialogue about teaching and learning in schools, *Journal of In-Service Education.*

Bitan–Friedlander, N., Dreyfus, A. & Milgrom, Z. (2004) Types of 'teacher in training': the reactions of primary school science teachers when confronted with the task of implementing an innovation, *Teaching and Teacher Education,* 20, 607–619.

Black, P. & Atkin, M. (Eds) (1996) *Changing the subject. Innovations in science, mathematics and technology education* (London, Routledge).

Black, P. & Wiliam, D. (1998) *Inside the black box: raising standards through classroom assessment* (London, King's College).

Bourdieu, P. (1986) The forms of capital, in: J. Richardson (Ed.) *Handbook of theory and research for the sociology of education* (London, Routledge).

Burden, R. & Nichols, L. (2000) Evaluating the process of introducing a thinking skills programme into the secondary school curriculum, *Research Papers in Education*, 15, 293–306.

Burt, R. (1992) *Structural holes: the social structure of competition* (Cambridge, MA, Harvard University Press).

Calderhead, J. & Shorrock, S. (1997) *Understanding teacher education: case studies in the professional development of beginning teachers* (London, Falmer Press).

Clement, M. & Vandenberghe, R. (2000) Teachers' professional development: a solitary or collegial (ad)venture?, *Teaching and Teacher Education,* 16, 81–101.
Cordingley, P. & Bell, M. (2002) *Summary of the Consortia overview report* (London, Teacher Training Agency).
Cordingley, P., Bell, M., Rundell, B., Evans, D. & Curtis, A. (2003) *The impact of collaborative CPD on classroom teaching and learning* (London, EPPI-Centre, Institute of Education, University of London).
Cousins, J. & Leithwood, K. (1993) Enhancing knowledge utilisation as a strategy for school improvement, *Knowledge Creation Diffusion Utilisation,* 14, 305–333.
Department for Education and Employment (2001) *Learning and teaching. A strategy for professional development* (London, DfEE).
Department for Education and Employment & Qualifications and Curriculum Authority (1999) *The National Curriculum—handbook for secondary teachers in England Key Stages 3 and 4* (London, DfEE).
Department for Education and Employment (2001) *Learning and teaching—a strategy for professional development (DfEE 0071/2001)* (London, DfEE).
Department for Education and Skills (2004a) *Leading in learning* (London, DfES).
Department for Education and Skills (2004b) *Pedagogy and practice: teaching and learning in secondary schools* (London, DfES).
Earl, L., Levin, B., Leithwood, K., Fullan, M., Watson, N. with Torrance, N., Jantzi, D. & Mascall, B. (2001) *Watching and learning 2—OISE/UT evaluation of the implementation of the National Literacy and Numeracy Strategies* (Toronto, ON, Ontario Institute of Studies in Education).
Ecclestone, K. (2004) Learning in a comfort zone: cultural and social capital inside an outcome-based assessment regime, *Assessment in Education,* 11, 29–47.
Edwards, A. & D'Arcy, C. (2004) Relational agency and disposition in sociocultural accounts of learning to teach, *Educational Review,* 56, 147–155.
Erickson, G., Brandes, M. B., Mitchell, I. & Mitchell, J. (2005) Collaborative teacher learning: findings from two professional development projects, *Teaching and Teacher Education,* 21, 787–798.
Fullan, M. (1999) *Change forces: the sequel* (London, Falmer).
Glaser, B. G. & Strauss, A. L. (1967) *The discovery of grounded theory: strategies for qualitative research* (Chicago, IL, Aldine).
Hall, G., George, A. A., & Rutherford, W. L. (1977) *Measuring stages of concern about the innovation: a manual for use of the SoC Questionnaire* (Austin, TX, The University of Texas).
Hargreaves, A. & Dawe, R. (1990) Paths of professional development: contrived collegiality, collaborative culture, and the case of peer coaching, *Teaching and Teacher Education,* 6, 227–241.
Hargreaves, A. & Fullan, M. (1992) *Understanding teacher development* (London, Cassell).
Helsby, G. & Knight, P. (1997) Continuing professional development and the national curriculum, in: G. Helsby & G. McCulloch (Eds) *Teachers and the National Curriculum* (London, Cassell).
Helsby, G. & McCulloch, G. (1997) *Teachers and the National Curriculum* (London, Cassell).
Huberman, M. (1989) The professional life cycle of teachers, *Teachers College Record,* 91, 31–58.
Huberman, M. (1995) Networks that alter teaching: conceptualization, exchanges and experiments, *Teachers and Teaching,* 1, 193–211.
Lave, J. & Wenger, E. (1991) *Situated learning* (Cambridge, Cambridge University Press).
Leat, D. (1999) Rolling the stone uphill: Teacher development and the implementation of thinking skills programmes, *Oxford Review of Education,* 25, 387–403.
Leat, D. & Higgins, S. (2002) The role of powerful pedagogical strategies, *The Curriculum Journal,* 13, 71–85.
Leat, D. & Lin, M. (2003) Developing a pedagogy for metacognition and transfer: some signposts for the generation and use of knowledge and the creation of research partnerships, *British Educational Research Journal,* 29, 383–416.

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009

McGuinness, C. (1999) *From thinking skills to thinking classrooms: A review and evaluation of approaches for developing pupils' thinking* (London, Department for Education and Employment).

Nias, J. (1989) *Primary teachers talking: a study of teaching as work* (London, Routledge).

O'Brien, J. & MacBeath, J. (1999) Coordinating staff development: the training and development of staff development coordinators, *Journal of In–service Education,* 25, 69–83.

Palincsar, A. S, Magnusson, S. J., Marano, N., Ford, D. & Brown, N. (1998) Designing a community of practice: principles and practices of the GisML community, *Teaching and Teacher Education,* 14(1), 5–19.

Ponte, P., Ax, J., Beijaard, D. & Wubbels, T. (2004) Teachers' development of professional knowledge through action research and facilitation of this by teacher educators, *Teaching and Teacher Education,* 20, 571–588.

Reeves, J. & Forde, C. (2004) The social dynamics of changing practice, *Cambridge Journal of Education,* 34, 85–102.

Riedel, H. (1977) *Allgemeine didaktik und unterrichtliche praxis: Eine einfuhrüng* (München, Kösel-Verlag).

Sarason, S. (1982) *The culture of the school and the problem of change* (Boston, Allyn & Bacon).

Simons, H., Kushner, S., Jones, J. & James, D. (2003) From evidence-based practice to practice-based evidence: the idea of situated generalization, *Research Papers in Education,* 18, 347–364.

Strauss, A. & Corbin, J. (1990) *Basics of qualitative research* (Newbury Park, CA, Sage).

Thomas, G., Wineburg, S., Grossman, P., Myrhe, O. & Woolworth, S. (1998) In company of colleagues: an interim report on the development of a community of teacher learners, *Teaching and Teacher Education,* 14(1), 21–32.

Wagner, A. (1987) Knots in teacher thinking, in: J. Calderhead (Ed.) *Exploring teachers' thinking* (London, Cassell).

Wallach, M., Kogan, N. & Bem, D. (1962) Group influence on individual risk-taking, *Journal of Abnormal and Social Psychology,* 65, 75–86.

Wenger, E. (1999) *Communities of practice: learning, meaning and identity* (Cambridge, Cambridge University Press).

Wideen, M., Mayer-Smith, J. & Moon, B. (1998) A critical analysis of the research on learning to teach: making the case for an ecological perspective on inquiry, *Review of Educational Research,* 68(2), 130–178.

Zeichner, K. & Tabachnick, B. (1981) Are the effects of university teacher education washed out by school experiences?, *Journal of Teacher Education,* 32, 7–11.

Downloaded By: [University of Newcastle upon Tyne] At: 08:26 28 April 2009