

## **Teachers as Learners: Promoting Professional Development through Inquiry**

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**Abstract:** Currently, there is evidence for a common vision of good professional development, which respects and builds on the knowledge and expertise that teachers already have and recognizes their intellectual leadership capacity (Zeichner 2003; Frost 2005). However, much remains to be done in understanding the nature of teachers' experiences and the contexts conducive to professional growth, particularly the role of universities in this process. Universities have traditionally been connected with schools in the pursuit of improvements in teaching and learning through a number of activities which can be grouped around three broad areas: initial teacher education and continuing professional development; consultancy; research (Day' 1999). Gradually there has been a shift in/of perspective in each of these areas so that it is no longer assumed to be simply a question of the schools benefiting from the expertise of the university sector. Contemporary education researchers believe that teacher inquiry, with its potential to redefine the knowledge base for teaching, and the investigation of their own practice will transform rather than simply add to what is already known about teaching and learning (Cochran-Smith and Lytle 1993; Furlong 2000). Consequently, increased interest in developing school-university collaboration to promote the creation and translation/transfer of knowledge is evident in both policy and practice in/of many countries, including the UK and USA.

**Keywords:** professional development, teacher's experiences, teaching and learning, inquiry.

### **Introduction**

This paper explores the link/connection between the promotion of inquiry-based learning in the classroom and the professional development of both novice and experienced teachers. The use of tools designed to elicit, record and analyse the development of students' awareness of their own learning processes is investigated in order to demonstrate how this supports teachers' professional learning. The paper discusses A three-year school-university collaborative practitioner inquiry project

involving more than 30 primary and secondary schools in England and a case study of the development of an inquiry approach in Initial Teacher Education. Analysis focus is focused on the role of feedback in teachers' learning and the links between the tools used, the source and content of the feedback. Teacher characteristics and appraisal of their learning are mapped from a 'second order perspective' derived from the diverse data sources.

In conclusion, the challenges for university based teacher educators and researchers engaged in the professional development of teachers for the 21st century are reviewed and opportunities identified.

Currently, there is support for a common vision of what would constitute good professional development, which would respect and build on the knowledge and expertise that teachers already have and recognizes their intellectual leadership capacity (Zeichner 2003; Frost 2005). However, much remains to be done in understanding the nature of teachers' experiences and the contexts conducive to professional growth, particularly the role of universities in this process. Universities have traditionally been connected with schools in the pursuit of improvements in teaching and learning through a number of activities which can be grouped around three broad areas: initial teacher education and continuing professional development; consultancy; research (Day 1999). Gradually there has been a shift of perspective in each of these areas to accommodate a more complex model of the relationship between research and practice; one that does not assume that knowledge is simply transferred from the university sector to schools. The importance of teacher autonomy as the key to improving practice through research and reflection was advocated 30 years ago (Stenhouse 1975; Elliott 1977), and contemporary education researchers stress that teachers who investigate their own practice will transform rather than simply add to what is already known about teaching and learning (Cochran-Smith and Lytle 1993; Furlong 2000). Consequently, increased interest in developing school-university collaboration to promote the creation and translation of knowledge is evident in both policy and practice in many countries including the UK and USA.

This paper explores the link between the promotion of inquiry-based learning in the classroom and the professional development of both novice and experienced teachers. The use of tools designed to elicit, record and analyse the development of students'

awareness of their own learning processes is investigated in order to demonstrate how they support teachers' professional learning. The paper draws upon three sources of evidence which analyse the role of feedback in teachers' learning, the links between the tools used and the source and content of the feedback: a systematic review of research into the impact of developing a pedagogy for inquiry-based learning on teachers; a three year school-university collaborative practitioner inquiry project involving more than 30 primary and secondary schools in the UK and a case study of the development of an inquiry approach in Initial Teacher Education.

#### 1. Systematic review of research evidence

The systematic review of research (Baumfield and Butterworth 2005) included 13 empirical classroom based studies with ecological validity where evidence of impact on learners was linked to impact on teachers. The review provided evidence that teachers engaged in the development of a metacognitively rich pedagogy, through which they gained access to appropriate teaching and learning tools, changed those aspects of their practice that are known to correlate positively with effective learning but have previously proven to be difficult to change. Thus the teachers were able to:

- develop a climate in which student contributions in discussion are encouraged and valued
- productively engage students with learning difficulties and gifted and talented students in inclusive classrooms
- ask more open-ended questions and focus on the way behind the answer
- allow more 'thinking time' for students
- encourage students to ask questions
- use mixed ability grouping more frequently
- consider optimum sized groups for tasks more carefully
- identify student abilities more accurately
- change the methods and focus of assessment.

The catalyst for change was the teachers' experience of positive dissonance (Baumfield 2006) whereby the gap between what they anticipated and what actually occurred in the classroom stimulated them to inquire more deeply into learning and teaching as demonstrated in comments such as the following from a teacher surprised by her insight into a child's thinking during a mathematics class :

“WOW – I'd never figured it out that way!”

(Franke et al ,1998, page78).

The link between a pedagogy for metacognition and tools for inquiry is corroborated by further systematic reviews of research into impact of thinking skills approaches on students ((Higgins, Baumfield et al. 2004; Higgins, Hall et al. 2005) and tested empirically in a collaborative school-university research project (Baumfield, Hall et al. 2007).

## 2. The Learning to Learn (L2L) project

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, 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 1992). 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). Teachers in the Learning to Learn (L2L) project worked in pairs or small teams to undertake a classroom based investigation into

an aspect of Learning to Learn as appropriate to their own context.<sup>1</sup> The data collected in the project consists of 85 case studies over 3 years reporting the impact of each annual investigative cycle on student learning and teachers' own professional development; 67 semi-structured teacher interviews collected over three years; annual cross-project analysis and a three-year overview conducted by the University partner, and a teacher questionnaire completed towards the end of the last year of the project. Within L2L, teachers use a variety of strategies to promote the self-regulation, motivation and metacognitive skilfulness of their students by making the *processes and intentions* of work in the classroom explicit. The overarching focus on learning processes and metacognition (Veenman, Elshout et al. 1997; Moseley, Baumfield et al. 2005) resulted in the emergence of some unifying themes across the project and one of the most powerful of these has been the role of feedback (Hattie 2005)

The project developed metacognitive tools (Wall 2006; Wall and Higgins 2006) which enable feedback to be used productively both in the here-and-now of the classroom interaction and reflectively within the inquiry cycle. The experiences of the teachers involved in the L2L project endorse this view and indicate how L2L offers a focus for developing pedagogy that stimulates and supports practitioner inquiry. 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 inquiry. Interview data suggest that this has proved stimulating to teachers' understanding of their own learning (Hall, Leat et al. 2006). Analysis of the use of one such tool, Pupil Views Templates (PVTs), reveals three feedback loops that inform teacher learning: student to teacher in the classroom as the tool is used; teacher to teacher as the impact of its use is discussed; teacher to university researcher as the meaning and significance of the teaching encounter

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<sup>1</sup> The detail of the work undertaken can be seen in the annual case studies completed by the teachers for inclusion in the end of year reports (<http://www.campaign-for-learning.org.uk>).

is mediated through the evidence provided.

PVTs are a predominantly visual method whereby data are collected around an image of the learning situation being investigated in a three-way interaction between the teacher, the pupils and the template. The key idea is that pupils can be asked, using a cartoon representation, to reflect on their thinking regarding different aspects of their experience. The speech bubble and the thought bubble on the template means that there is an automatic prompt for the pupil to talk about what they are thinking. This could very simply be what they think about a specific activity, for example independent reading, or it could be more sophisticated with regard to the more abstract thinking processes which they associate with or utilise during a specific activity.

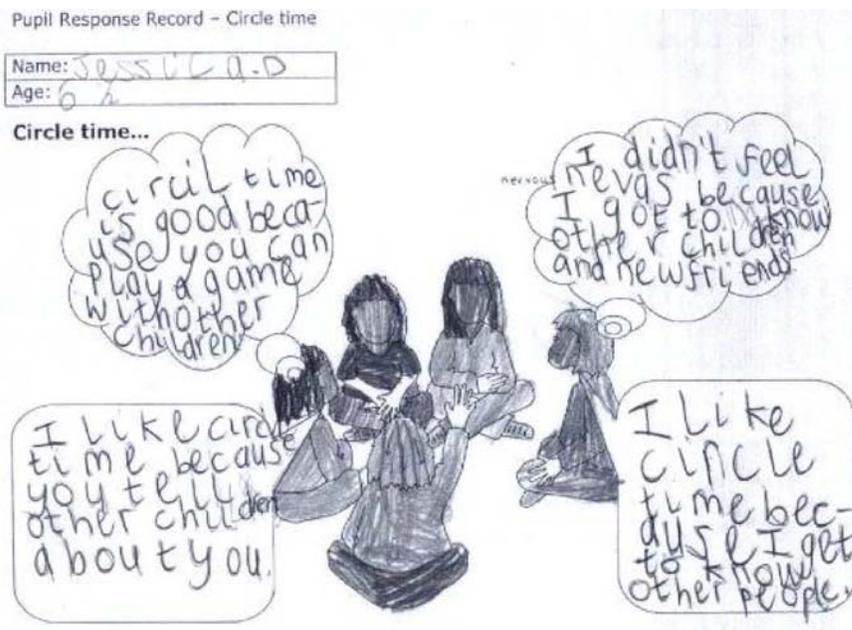


Figure 1: Example of a Pupil Views Template

The crucial process element of such catalytic tools is the rate and precise nature of the feedback produced. The feedback from PVTs 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 PVT works 'in the moment' as a teaching and learning tool but, used as a research tool, differences between individuals and groups, changes over time, discourse and evidence of metacognitive behaviours can all be explored. PVTs provided a range of data for teacher in the project and the use to which they put the data varied. In all the schools that used templates there is a linking theme about the value of pupil autonomy and self-reflection and the deliberate aim of promoting these outcomes by using the templates. The capacity for PVTs to disrupt the traditional, dominant I-R-E pattern (teacher Initiation, student Response and teacher Evaluation) in classrooms provided opportunities for students to engage more deeply with the processes of their own learning and listen more carefully to the opinions of their peers and is consistent with findings from other studies focusing on metacognitively rich pedagogies. The quality and immediacy of the feedback on pupils' metacognition, content understanding and affective state which was generated by the use of PVTs was not only a powerful motivation for teachers to continue using them but also established a feedback loop between teachers. As PVT data began to be shared in staffrooms, in case studies and in staff training, feedback to and from other staff grew in importance. PVTs provided evidence that was of interest to other teachers and sufficiently convincing to serve as a warrant for action within their school and in some cases beyond the school.

“ [PVTs] produced some of the most insightful data and had the most impact on other staff... Prior to our participation... we did not have the tools with which to measure children's views of their learning. We would often hear of, and trial, new initiatives in our classrooms. Having more concrete data with which to measure success has meant that [our initiative] has had an impact beyond individuals and even classes. [It] has impacted (sic) the school as an institution.”

(School A, 3rd year case study)

PVTs are sufficiently tentative to require testing in action through the teachers' experimentation, and interpretation involved genuine participation of everyone in the reaching of judgements regarding the significance of the data. Consequently, the PVTs supported the engagement of both teacher-researchers and the university team in co-inquiry. This third feedback loop also involved developing the inquiry beyond the immediate context in the exploration of existing research and here the university team

could play a key role in linking engaging *in* research to engaging *with* research (Temperley and McGrane 2005).

### 3. Case Study of developing inquiry in Initial Teacher Education

The experience of working with practising teachers in collaborative research projects confirmed the importance for the profession of being confident in the use of research and evidence to inform teaching and demonstrated how a synergy between teaching and research might be achieved by providing tools to support inquiry in Initial Teacher Education (Baumfield, Lofthouse et al. 2006). Analysis of assignments and course evaluations completed by previous cohorts of Post Graduate Certificate of Education (PGCE) students identified a number of dichotomies experienced by students in the process of learning to be a teacher:

- Academic v practical
- Reflection v action
- Learning v teaching
- Knowledge v application

Promoting reflective practice was central to the redesign of the PGCE course in order to help students begin to make sense of the dichotomies they encountered. In the new course, students worked throughout the year on recording lesson observations, individual and collaborative school-based tasks analysing aspects of teaching and learning and an action research project: these formed cycles of inquiry and the students' development as teachers was assessed by the presentation of a portfolio of evidence of professional learning. Tools are provided as a means of instigating inquiry whilst also supporting the process by giving the student concrete means of accessing and analysing their routines and practices in the classroom, and one of the most powerful proved to be the use of video to record and analyse classroom incidents<sup>2</sup>. Students were given a

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<sup>2</sup> Using video poses some ethical issues and this was addressed under the wider remit of research ethics; as a rule of thumb, students were given the 3Ps to remind them

choice from a menu of possible foci (teacher explanation, a question and answer session, a lesson plenary). Whatever the choice of focus, the procedure supported by the tools involved completing an annotated transcription of the appropriate section of the lesson and the identification of a critical incident.

Students found the video to be a powerful tool as it made it clear to them what they were doing in the lesson in a more direct and forceful way than their own impressions at the time or the mentor's comments on the observation sheets completed on a weekly basis. The following selection of quotes from a range of students after the first cycle of inquiry is an indication of the revelatory experience of using video:

It became clear that the same pupils kept answering the questions...I started to be more deliberately inclusive.

Looking at the detail of what I said and did made sense of my mentor's comments.

I became aware of how I was using subject and general language – and realised I had pitched the lesson too high.

I transcribed 10 minutes of the lesson – and had only asked closed questions.

Analysis of the portfolios after the second cycle of inquiry using video show that the cognitive dissonance experienced in the first cycle is deepened and leads to a better understanding of their role:

I thought I had hidden my anxiety well during the lesson...I watched the video and then understood what my mentor meant...

Making aspects of behaviour more explicit through the video and the other tools of analysis stimulated a more robust form of professional dialogue and enabled the students to make connections with other sources of evidence, including research:

It allowed me to approach the mentor session with a clearer sense of my own views and ability to articulate my position on what had happened and why.

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of the importance of remembering: privacy, permission and purpose.

Students were taking a wider perspective and there were early indications that the dichotomies they faced were open to resolution:

I have learned to look at circumstances and incidents that arise during my teaching as elements of a wider process...which can inform how I deal with a range of situations.

The new PGCE course has shown that students can be supported in engaging in inquiry into their practice. That this enhances rather than detracts from their development of the competences and skills needed at the start of their teaching careers is evident in the encouraging feedback from external examiners:

Students have a broader awareness; clear links are made between theory and practice. Course has rigour.

Students' levels of understanding, engagement and development as teachers have been improved through the greater integration of research and inquiry.

Students use critical and analytical tools more routinely.

Inquiry approach creates substantive dialogue between student teachers and school staff about learning.

In conclusion, preparing teachers for the 21<sup>st</sup> century requires us to build on what is already known, harness the professional expertise of teachers and open up inquiry in the classroom so that learning is a collaborative, exciting and efficient activity. The overview of three sources of evidence concerning the professional learning of both experienced and novice teachers presented here shows that we have reason to be confident that we can actively engage teachers in the pursuit of excellent practice in the classroom. However, if we are to make progress, we need to be aware of the importance of stimulating and supporting professional inquiry, and this will require us to have the right tools for the job:

...the best way to improve practice lies not so much in trying to control people's behaviour as in helping them control their own by becoming aware of what they are doing.

(Elliott 1977)

Building partnerships between teacher educators working as researchers in the university and teachers in classrooms can create opportunities to engage in and with research so that pedagogy is informed by evidence and can contribute to a better conceptual understanding of educational processes.

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