



From Transmission to Collaborative Learning: Best Evidence in Continuing Professional Development (CPD)

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From Transmission to Collaborative Learning: Best Evidence in Continuing Professional Development (CPD).

Symposium facilitated by the Networked Learning Group of the National College of School Leadership (NCSL), in partnership with the Centre for the Use of Research and Evidence in Education (CUREE).

Abstract

This interactive symposium explores the characteristics of effective collaborative CPD for teachers through modeling the use of evidence and research. The work developed from a systematic review of the impact of CPD on teaching and on student learning coordinated by CUREE within the framework provided by the Evidence for Policy and Practice Information (EPPI) Centre at the University of London.

The symposium draws upon the work of a group of teachers from Networked Learning Communities (NLCs); a research and development programme involving 109 networks of more than a thousand schools throughout England. The networks focus upon enquiry oriented learning at many levels including adult learning as a means of enhancing pupil achievement. The teachers involved in this project undertook to test, illustrate and interpret the findings of the research review as part of developing their own approach to adult learning.

The symposium offers the opportunity to examine what it means to learn from evidence and to explore how the outcomes and processes might support the collaborative learning of others. It will be of particular appeal to those interested in innovative and collaborative ways of promoting sustainable school improvement and transformation.

Aims and contents

This paper explores how the recently published systematic review of the impact of collaborative CPD relates to the adult learning taking place in NLCs. It will:

- examine the EPPI review in relation to nine key features highlighted as being of significant interest to those involved in developing adult learning within the NLCs;
- provide an overview of the structure, scope and work of the NLCs, in relation to adult learning, to illustrate the range and breadth of the adult learning taking place within the participating project networks;
- reflect on the early experiences of the project schools as they initially map their experience against the findings and begin to use them to introduce new processes into their CPD work; and
- provide illustrative material and analysis in those areas of most interest to NLCs.

After reflecting on the findings of the research review at an exploratory seminar, six networks (of which four are represented at this conference) were asked to identify:

- one area where they felt able to test and illustrate an approach from within their current NLC practice; and
- one area that they would like to test and develop further.

The foci on which the networks are currently working are:

- wrapping the external knowledge base and external expertise around internal support and enquiry processes;
- extending dialogue between colleagues through, for example, debriefing;
- extending CPD processes to create opportunities for identifying and building upon individual teachers' starting points;
- examining the learning of middle managers in the context of the review;
- embedding CPD to secure depth, and enable the completion of reflective cycles; and
- processes that are effective in developing trust and encouraging risk taking.

Background: an overview of the NLCs

NLCs are partnerships between schools with the specific focus of improving pupil, teacher and head teacher enquiry oriented learning. This government funded initiative was launched in 2002 by the NCSL as a four year project. The programme currently comprises 109 networks of schools, ranging in size from six schools to large clusters. There are also 140 associated networks. Collaborative adult learning is core to this voluntary research and development programme.

The Networked Learning Communities Programme is positioned at the intersection between teachers, schools and middle tier providers such as Higher Education Institutions (HEIs) and Local Education Authorities (LEAs). Specific aims of the partnerships include:

- development of leadership for learning;
- facilitating continuous improvement by schools enquiring into their practice;
- sharing processes and outcomes;
- engaging teachers in exploring and interpreting research findings; and
- targeting outcomes to attract widespread interest and take up.

The programme's remit and policy position mean that it is located in a critical position in relation to current debates around knowledge creation and management (Cordingley, AERA 2003).

NLCs are designed to provide support for risk taking and creativity within and between networks. They aim to act as critical friends to one another, with teachers and leaders developing local practices and solutions, which can be adapted and interpreted by other schools and networks.

The Networked Learning Communities Programme is also, however, a large-scale action research project which is government funded as part of a raft of policies that respond to diversity in the English education system through specialisation in schools and personalisation of the curriculum. Originally designed as a small quasi-experimental

model to test various hypotheses about the potential of networking and collaboration between schools to build capacity for institutional change, the NLCs have been allowed to proliferate in order that they could become a key source of evidence for understanding how networking and collaboration might also build capacity for systemic change.

The project in context: programme and system approaches to practitioner enquiry

As part of its contribution to this agenda, the NLC programme is committed to learning in real time, i.e. making information available when it is useful, about the effects of providing incentives for collaboration on this scale. Earlier papers (Cordingley, AERA 2003, Bentley & Horne, AERA 2003, Jackson & Leo, AERA 2003, Temperley & Horne, ICSEI 2003) have dealt with the principles and concepts by which a research strategy for this diverse and dynamic programme might be designed. The key operational manifestation of these principles is the framework of enquiry and research questions and agreed protocols for working collaboratively with practitioners and other institutions. Questions are stranded and clustered and project-planning methodology is applied to enable coherent development and to build a critical mass of effort. Efforts are directed towards producing outcomes and findings over an 18-month timeframe, (i.e. before summer 2005). The two questions from the framework addressed in this project are:

- Q17 How do NLCs improve the quality of adult learning and CPD? How do NLCs improve the quality of classroom practice?
- Q27 How do NLCs support schools to learn from research and evidence?

The questions and methodological challenges represent an exacting "Learning Programme" that depends upon purposeful collaboration between practitioners and the research community. This paper, and the enquiry programme on which it is based, provide one example of the programme's efforts at pursuing such collaboration at institutional and interpersonal levels. It provides, in effect, a work-in-progress exploration of how this approach to programme learning looks on the ground. The research design accommodates practitioner enquiry with its focus on local context and specific change; programme level enquiry into collaborative CPD and how it is organised in NLCs; and partnership with an external research organisation to draw in theory and evidence and test them in a variety of contexts. It achieves this by 'nesting' questions from the learning programme together in such a way that alternative methodologies can comfortably co-exist and so that the findings from each enquiry can add value to the next.

The commitment to learning in public and beyond the programme boundaries

Two further considerations were central to the project design. The first was a careful consideration of audience and timing. Two conferences have been chosen for the early exploration of process findings. This is the first. ICSEI is respectful of practitioner enquiry and research but is nonetheless interested in academic interpretations of what constitutes rigour in the application of research and evidence. Exposure in this environment for the teacher researchers is a key learning opportunity in the project. The second is the National Teacher Research Panel (NTRP) Annual Conference in March 2004. Similarly focused on quality and rigour, the NTRP emphasises practitioner enquiry

and research over its academic equivalent and supports teacher researchers specifically in the translation of research findings into evidence to inform others' learning and practice. Along with opportunities afforded by the NLC programme infrastructure to publish and present to other networks, this structured approach to engaging regularly beyond the immediate research group models some important principles in the NLC programme. Other literature relating to NLCs deals with this in greater detail, but essentially the commitment to '*learning from, with and on behalf of...*' challenges us to find opportunities for collaborative learning about process as well as outcomes and to draw on knowledge from both within and beyond the immediate constituency of the programme.

The second consideration takes us into a double, reflective practice learning 'loop'. Insights from research become, in themselves, professional learning materials and resources as soon as efforts are made to share the work beyond groups who have the opportunity for direct contact. This project is predicated on 'best evidence...' about CPD, but is also itself an episode of CPD for the participants, practitioners and researchers (although it may alternatively and properly, for researchers, simply represent an opportunity for analysis and critique). As such, it clearly needs itself to pay attention in its design to the characteristics of effective CPD identified in the EPPI review as being linked to positive impact. From the ways in which networks were sampled and participants recruited to the project, through to the structure of the initial seminar and guidance offered about how the project might unfold locally, every attempt has been made explicitly to model and interrogate the findings of the EPPI review to optimise the learning opportunities that the project offers. In this way the project will generate operational images and illustrative examples of how engagement with research and evidence can contribute to organisational and interpersonal learning in schools, networks of schools and in the programme as a whole.

The review: the impact of collaborative CPD on teaching and on learning

The purpose of the review was to systematically review the literature on CPD using the EPPI methodology in order to discover evidence about sustained, collaborative CPD and its effect on teaching and learning. A summary of the review and the full report can be found at www.eppi.ioe.ac.uk. We set out in this paper a skeleton of the findings, and a more detailed exploration of those that the project participants found of particular relevance to their work as NLCs.

The actual review question was:
"How does collaborative CPD for teachers of the 5-16 age range affect teaching and learning?"

The effects or impact of the CPD was explored both in relation to *teacher* learning, beliefs, knowledge, attitudes and behaviour, and to *pupil* motivation, learning processes and outcomes. The evidence contributing to the review was weighed independently by two people to assess its relevance both to the original research question and to our own review question. Furthermore, evidence was weighed separately in relation to whether the CPD had an impact and to questions about the nature of the processes and impact, i.e. to how such an impact took place.

Collaborative CPD was defined as "*sustained activity with explicit learning goals involving teachers working together, or teachers working with LEA, HEI or other professional colleagues*". In fact, all but two of the studies involved extensive peer support between serving teachers as well as with external colleagues.

Review findings

The evidence that emerged linked collaborative CPD to positive changes in *teachers*, including:

- self confidence e.g. in taking risks;
- self efficacy e.g. belief in ability to make a difference;
- willingness to continue professional learning;
- willingness and ability to make changes to practice;
- knowledge and understanding; and
- knowledge of wider repertoire of strategies and the ability to choose when and how to use them.

Evidence also indicated positive links with *students*, including:

- motivation to learn;
- performance e.g. test results, and specific skills, such as problem solving or development of reading strategies;
- responses to specific subjects and curricula;
- organisation of work;
- use of collaboration as a learning strategy;
- questioning skills and responses; and
- skills in selecting and using a wider range of learning activities.

Features of the *CPD programmes* which were found to have been linked to positive impact included:

- building on the knowledge base about professional learning;
- using external expertise in the form of consultancy linked to classroom based activity;
- opportunities for collaboration with peers and 'experts';
- coaching including observation, feedback and shared interpretation of classroom experiences;
- processes to encourage, extend and structure professional reflection and dialogue;
- programmes that were sustained, enabling teachers to embed new practices in their own contexts; and
- scope for teachers to identify their own starting points, CPD needs and the focus of enquiry or development.

The key areas of adult learning identified by NLCs

A seminar was held in October 2003 where members of six NLCs collectively examined their current practice and experiences drawing upon elicitation theory to surface differences and similarities between adult learning/CPD practices in their networks and those highlighted in the review. The following key features of effective CPD reported in

the systematic review were highlighted as being of significant interest to those involved in the design and co-creation of adult learning in this area and were identified as being of direct relevance to current NLC practice:

- the use of external expertise linked to school based activity;
- opportunities for teachers to identify their own CPD focus so they could focus on issues which were important to them;
- processes to encourage, extend and structure professional dialogue;
- scope for teachers to identify their own starting points and learning needs;
- the use of peer support;
- observation, particularly teacher observing each other and learning from each other;
- feedback (usually based on observation);
- refining reflective processes, particularly through debriefing, with HEI support; and
- processes for sustaining the CPD over time to enable teachers to embed the practices in their own classroom settings.

These features are explored in more detail in the penultimate section of this paper. The networks' first steps in testing, illustrating and exploring these approaches is summarised in the case study vignettes in the concluding section of this paper.

The use of external expertise linked to school based activity

The EPPI systematic review sifted through 13,479 titles and abstracts and screened 266 full studies. Just 17 studies passed the exacting criteria and were examined in detail. Here we report on the 15 which were deemed as trustworthy in terms of robustness and relevance on the basis of an exacting data extraction process.

One of the universal characteristics of the CPD programmes linked to positive impact evidence touches on an important emerging pattern of collaboration within NLCs. Few requirements regarding relationships with HEIs were built into the programme design. NLCs were encouraged to build networks of schools and to draw in external expertise tailored to their specific purposes. By no means all NLCs established strong partnerships with HEIs at the start. But, by the end of the first year, the networks making the most confident progress all highlighted the importance of their partnership with HEIs, particularly in relation to enquiry skills and identifying a learning focus.

All of the studies reviewed for EPPI relied upon various forms of external expertise, usually through researchers from local universities, although local and district authorities were also represented. This was not a matter of the wise lecturing to the ill-informed. Sensitivity and flexibility were deployed to develop partnerships between teachers and external experts that were based on collaboration between equals, where both parties had something useful to contribute and where subsequent analysis and discussion of current practice was non judgemental. The many benefits that 'outside experts' brought to the CPD programmes included:

- providing examples of relevant existing research to inform teachers about what the evidence tells so far;
- support in refining the study question to make it both useful and manageable;
- modelling the new practices;
- mentoring or coaching teachers as they embarked on the new practices;
- providing a focus for debate, encouraging professional reflection; and
- advice on collecting data and analysing it.

There were many examples of 'expert support' in terms of specific curriculum areas, ranging from the development of teachers' own knowledge of mathematics and their pupils' understanding of fractions, to training in reading strategies to support secondary pupils with subject-based texts. In one study, for example, the researcher drew extensively on her background in national curriculum development in mathematics and computing studies to support a programme based on the development of teaching and learning of computer programming (Kirkwood).

Existing theory and evidence about effective CPD and/or effective learning strategies was brought to bear by external expertise. Many programmes used explicit exploration of this material as a learning strategy. For example, researchers in one study participated in 'theory-meets-practice' discussions with teachers. The authors reflected: *"Teachers recognise the importance of connecting with the research base of their profession and directly with researchers and others who value teachers as partners in advancing the knowledge base ... As teachers enquire into their own practice ... they interact with university scientists and science educators in a way that affects everyone. Involved teachers ... commit to the ongoing process of reflection and informed decision making."* (Parke & Coble).

Opportunities for teachers to identify their own CPD focus

The design of the NLC programme was kept deliberately open in order to build ownership and enable responsiveness to the specific contexts of schools and networks. The finding about the importance of enabling teachers to choose their own learning focus was particularly interesting to NLCs. It raised the question about the ways and/or extent to which it has been possible for networks to afford similar levels of responsiveness to individual teachers whilst retaining a recognisable critical mass of shared interest across schools and a focus on whole school improvement.

Seven studies from within the review explicitly reported that teachers were given a 'voice' in selecting the study aims and the focus of the CPD. Other studies adopted strategies that were highlighted as being important in designing the programmes around areas of direct interest to the teachers with the purpose of addressing immediate needs and concerns. In two instances, teachers initiated the CPD programmes by approaching university research departments for help.

Once teachers had identified a focus for the CPD, the 'experts' were able to draw on their knowledge of the literature to offer examples of existing research in the field. In this way, teachers in the Britt study learnt about the concept of reform mathematics and then identified a particular strategy or approach they wanted to try in their classrooms.

Teachers in the Brown study were keen to raise the standard of learning for the lower achievers in their classes. The university researcher provided a menu of learning interventions which had been shown by previous research to be effective in supporting low achievers. During the study, the teachers tried some of these approaches, adapting them to suit their own contexts where necessary.

Teachers also took ownership of the CPD by influencing the pace and scope of the project, as evident in ten of the studies. For example teachers were given a voice in the intervention timetable or the professional development sessions they attended including:

- developing their own team schedules for introducing new reading strategies on a staggered week by week basis (Bryant); and
- electing to join in group discussion forums according to individual interests and time commitments (Kirkwood).

Many of the studies identified the benefits of teachers having a sense of ownership and of addressing their real concerns. A sense of ownership was also a great motivator, for example:

- where teachers were concerned about students who were struggling with reading in classes such as science or maths, they were more likely to focus on implementing new strategies because they viewed them as helpful to their students' needs (Bryant); or
- as teachers gradually took ownership of the enquiry process and competence and confidence grew, so they became more committed, eventually electing to extend the life of programme and design a new plan of action for the following year (Harwell).

In one study, teachers created informal networks to enable them to solve problems collectively as they arose. The author argued that;

"This allowed teachers to determine their own priorities and freed them from dependence on centrally produced solutions, many of which are viewed by teachers as either poorly designed or inappropriate to the needs of their students." (Kirkwood)

Processes to encourage, extend and structure professional dialogue

At the heart of networking and collaboration lies the process of professional dialogue. The enquiry report from the first year of the programme (Bell, Cordingley) highlighted such dialogue as one of the most factors underpinning early success and the networks' responses to the EPPI evidence echoed this intense interest. We have therefore explored the material from the studies about professional dialogue in some depth in order to provide an anatomy of key components and to provide illustration.

As might be expected of collaborative CPD programmes, structured opportunities for professional dialogue focused on teaching and learning were a high priority in all of the studies. These opportunities were built into the programmes through seminars, workshops or coaching. External facilitation, the development of a focus and inclusivity were all identified as important elements in promoting professional dialogue.

Facilitation

Outside consultants, usually university personnel, played a significant role in facilitating professional dialogue in over half of the studies. The structure and content of the discussions varied from study to study, but commonly reported features included:

- provision of source ideas including those from research literature to stimulate debate;
- mining teachers' tacit knowledge and beliefs; and
- joint exploration and modification of possible alternative strategies.

In one study, professional conversations were structured around five phases (Parke & Coble):

- dialogue about research and national goals (in science);
- articulation of personal beliefs;
- curriculum design;
- alignment of the curriculum with school environment; and
- design of assessments.

The problem of how such conversations might be promoted and sustained, particularly when there are other demands on school resources, was explored in the Britt study. It was reported that while the university researchers played an initial role in promoting these conversations, the conversations began to take place without their presence. These conversations were a place where teachers felt "safe to talk about what did not go well", something that was rarely analysed in their schools where most of the discussions among teachers had previously related to organisational matters.

There was some evidence that facilitation of professional dialogue was more effective when it involved focused expert support. In one study, (Saxe) three different CPD programmes were compared. Two of these both involved the use of university based 'experts' as facilitators for professional discussions. In one programme the facilitator provided focused help with subject matter at both adult and pupil level and a deep understanding of the new approaches to instruction. In the second programme the teachers again based their professional development on collaborative discussions, supported by a facilitator, but these were based on the teachers' own agenda without the injection of focused expert support with subject matter or suggested new approaches to mathematics. While both groups touched on common issues, the resulting stronger conceptual performance of the students of teachers in the IMA group was attributed to the opportunities for teachers to enhance their own understanding of mathematics and the way that their pupils make sense of mathematics.

The focus of discussions

'Outside experts' were able to bring their subject and research expertise to help focus CPD programmes. In at least seven of the studies this took the form of an initial 'knowledge boost' with a subject or pedagogical focus. Unlike similar In-Service Training (INSET) inputs, this was often the precursor to the articulation of teachers' own beliefs and an opportunity to discuss alternative approaches to suit individual contexts.

For example, in the Kimmel study, *"teachers were introduced to basic information and computer terminology and given an overview of the computer from the hardware, software and applications viewpoint."* The reason for this initial focus was to provide teachers with essential knowledge to carry out discussions.

Teachers in other studies were encouraged to consider alternative approaches to current practice such as:

- intervention strategies to enhance learning skills of lower achieving pupils (Brown);
- provision of a more student centred approach (Britt, Ross, Harvey);
- specific strategies to develop reading skills of struggling readers in specialist subject lessons (Bryant); and
- making adaptations for special needs pupils in general education classrooms (Kimmel).

Such alternative approaches were commonly used as the basis for creating customised strategies that teachers anticipated would be effective in their own contexts. Researchers in two studies went so far as to minute these discussions and circulate copies to teachers so that they could reflect on ideas and practical suggestions that had emerged in the discussions.

In five action research studies, university researchers were able to share their knowledge of research methodology with teacher researchers. Feedback from initial trials was frequently used as a focus for debate, either formally in group meetings or informally through one-to-one coaching. In the Ross action research study, the teachers collaborated with the 'experts' in meetings where they:

- planned their projects;
- identified problems in manipulation;
- engaged in collective problem solving; and
- exchanged data on effects.

Individual meetings enabled the university researcher to explore how far the teacher-researchers thinking had progressed, the instruments and procedures they had developed and to identify future tasks.

Encouraging inclusiveness

There is evidence from at least five studies of the need actively to involve all participating teachers in professional dialogue, rather than allowing voluntarism to encourage some to take a back seat and let others make the decisions. Reasons for non-participation were not always immediately apparent and the dynamism of the majority could mask the fact that some group members were not gaining as much as others. The need to be mindful of teachers' differing starting points, for example in their understanding of technology, maths or science, was highlighted in at least three studies. In one case, a teacher found it difficult to engage in professional conversations as she lacked an essential understanding of mathematical connections (Britt).

The author of the Kirkwood study argued that teachers learn at an individual pace and it would have been easy to use the more experienced and articulate members of the

group to move the project forward. However, the university consultant acknowledged that this would have *"impoverished the learning experience for everyone and would have resulted in some teachers feeling that they were always on the outside."* Flexibility in the process allowed all teachers to become active agents of change in a way that they felt comfortable with.

The need actively to involve teachers who felt less confident was also highlighted in the Gersten study. Some teachers were confident and articulate, and had plenty of ideas that they wanted to try out but others seemed to lack the confidence to provide ideas or solutions themselves. They were content to be told what to do. Needless to say, without opportunities for discussion (either formal or informal) *"teachers at times failed to grasp the heart or intended purpose of the changes suggested by the (district) special educator. Without dialogue, the special educator ... misread caution as resistance. It seems critical that teachers be encouraged to suggest strategies and define instructional problems on their own rather than consistently comply with suggestions."*

Exploring teachers' beliefs

For many teachers, these professional conversations provided a platform to explore their own belief and practices. The Kirkwood study refers to the need for 'inner learning' (intra-personal sense making) as well as 'outer learning' (relating and collaborating with others).

The importance of teacher beliefs was reflected in various ways in the research:

- we were interested in teachers' own knowledge because *"personal knowledge contributes to change in instructional practices, researchers must understand teachers' perceptions of the instructional changes they encounter and how they are addressing those challenges."* (Richardson 1994, in Bryant);
- the study was informed by the failure of previous teacher development approaches which may be *"partly attributed to lack of teacher commitment traced to conflicts between teachers' own norms and values and those imposed externally."* (Da Costa); and
- the authors of the Ertmer study argued that, in addition to first order barriers to professional improvement, such as lack of access to computers or inadequate technical support, programme design needed to address second order barriers such as beliefs about teaching, established classroom practice or reluctance to change.

Scope for teachers to identify their own starting points and learning needs

In more than half of the studies it was reported that teachers were given options when choosing strategies or accommodating practices in order to build upon what they have and could do already. Joint planning of new materials also enabled teachers to craft the proposed changes to suit their own teaching contexts and make good use of their own talents and skills. In this way, the CPD became a joint mission, flexible enough to ensure that it was fit for purpose rather than a 'one size fits all' package of imposed change.

The author of one study reflected that, in this way, the need to differentiate learning according to needs applied equally to adult learners as well as their pupils:

"With time, the special educators and project staff began to practice what they preached. Just as they encouraged teachers to modulate their instruction so that it met the individual needs of their students, so they learned the importance of modulating their coaching to the needs, desires, interests and abilities of the individual teachers." (Gersten)

Evidence from the individual studies indicated that the following features allowed the flexibility which was necessary to address teachers' individual starting points and learning needs:

- activities that created insights into and enabled exploration of teachers' beliefs and current practice were cited as important in 11 studies. For example the authors of the Gersten report noted that there were obvious differences in the thinking of the special needs teachers and the general classroom teachers. It was apparent that *"teachers' tacit knowledge and beliefs needed to be addressed and without this, such programmes could be at risk."*
- observation and feedback (nine studies) enabled coaches or mentors to understand 'where teachers were coming from.' Coaching was seen as a means of supporting teachers when implementing new practices, as a direct means of advising on specific problems and, in some cases, modelling of new techniques. In one study, coaching was seen as encouraging *"a focus on activities that are beyond the teachers' normal repertoire of skill, but within their capabilities with assistance."*
- action research programmes (five studies), involving teachers in collaborative discussions based on the research questions and processes ensured that teachers were able to start at a level of enquiry they felt comfortable with and took on new areas of enquiry as they felt able. For example in the Ross study *"participation in collaborative action research helped these teachers to add an item to their agendas for professional renewal and to determine when they a would deal with that item."*
- establishing more than one learning cycle was cited in three studies as enabling teachers to build on what they knew and could do already. For example in one two-phase study teachers initially reflected on their own practice, learnt how to conduct research and identified their research focus. During the second phase, they conducted their own research (Ross).

Although six studies conducted some sort of baseline needs assessment for participating teachers, it was not clear whether the results were used formatively in the programme design. Such information may have been useful in pitching the CPD at the right level.

Peer support

Teacher-to-teacher collaboration in the form of either: coaching; joint preparation of materials and or lesson planning; or professional discussions was a feature of thirteen studies. Collegiate support, in many cases through participation in the 'project team', was beneficial not only for the individual teachers involved but for the ultimate success of the programme. The opportunities to brainstorm ideas, collaborate in exploring new strategies and to share the work of developing new materials and schemes of work had

the effect of "*reducing the load on each individual while simultaneously enhancing the productivity of the group.*" (Kirkwood)

In 11 of the studies, workshops or seminars provided an opportunity for teachers to meet collaboratively to explore new strategies and to discuss how best to adapt them to suit their own contexts. In six cases, workshops also provided an opportunity to come together to draft new schemes of work or design new materials.

This cross-fertilisation of ideas not only occurred within the 'formal structure' of the CPD programme as indicated above, but also through informal visits and ad hoc discussions. In one study a group of four teachers met several times a week and discussed how they were each implementing the strategies. They found that it was helpful to get this feedback and learn of other teachers' ideas (Bryant). In three further studies, teachers arranged to visit colleagues' classrooms on an informal 'invitation' basis to get an insight into how others were implementing the new practices.

Observation, particularly teachers observing and learning from each other

Observation and feedback featured in nine of the studies. Sometimes, as indicated previously, this was an informal arrangement between teachers, sometimes a more formal process involving peer coaching or coaching by experts. The resulting feedback varied from unstructured teacher to teacher conversations, to highly focused feedback, from researchers and/or teachers, relating to predetermined aspects of the lessons based on evidence from audio or video tapes or other forms of data collection.

There was evidence that teachers valued the coaching process, but that it could initially be a 'painful' experience. This quote from a class teacher in the Gersten study seems to sum up the dilemma:

"I was sure that all my warts and scars would be exposed ... I knew that there were judgements made which I would not like hearing." However, the same teacher later concluded: "The experience has been well worth the initial pain and has left me, at the end of the year, more positive that I can be effective for many more students than I was previously."

In five of the studies, teachers observed each other implement the new practices. A further two studies reported extensively on the process of peer coaching. One of these studies offered a model which involved a four stage process of teacher-to-teacher coaching (Kohler):

- a baseline stage where teachers planned and implemented the programme strategies unaided;
- peer coaching to increase incidence of programme strategies aimed to develop students' social interaction;
- peer coaching to refine these adaptations; and
- a maintenance phase to consolidate progress.

One of the teachers involved said that the process of peer coaching had helped her to become more focused on students' individual needs. Another teacher found that

observing her peer had helped her to realise the potential of her lower achieving children.

In a further study (Da Costa), collaborative consultation without direct classroom observation on the part of a teaching partner was the least effective method, of the four studied, in promoting pupil achievement and personal teacher efficacy. The need for a climate of mutual trust and respect was again highlighted in this study where the collaborative consultations were 'non-hierarchical in nature.'

Feedback

As indicated previously, observation and feedback featured in nine studies and the extent of the feedback varied. Where the observation was highly structured, it enabled the consequent feedback to focus closely on (Britt), for example:

- incidence of whole class teaching versus group teaching;
- the use of teaching materials;
- the degree of participation by students; and
- the tapping of students' existing knowledge.

In this way, "it was possible to get beneath the surface of issues to identify a range of factors that could be contributing to the problems beyond the most obvious ones. This led ultimately to better planning and decision making." (Harwell)

Detailed feedback from the university coach was also a feature of the Brown study where specific objectives for the observation process were set by the teacher being observed. Here the feedback was highly focused not only in terms of commentary but in quantitative analysis of occurrences of particular features such as:

- did not get started/got started pretty soon/got started immediately;
- everyone contributed ideas YES/NO; and
- tried to help others contribute their thoughts and ideas YES/NO (numbers were cited for each feature).

Commentary also included a section on things to do differently next time. Comments ranged from seating by gender, defining the work pattern and distribution, listening carefully to instructions to ensuring that individuals all pull their weight.

The formative nature of such exchanges is exemplified by the Gersten study where the coaching process was based on three principles:

- classroom observation and feedback should be ongoing and intense, including informal discussions of how instructional principles relate to observed teaching and learning situations;
- coaching sessions should highlight observed impact of suggested practices on target studies; and
- suggestions should be concrete and practical and should fit the realities of the classroom.

In this study the special educator would share his perceptions with the teacher as soon as possible after each observation. The coach then presented one or two suggestions, based on previous research, which were broken down into relatively small manageable

steps. Once a plan of action had been agreed the teacher began to implement the strategies, once again supported by visits from the coach.

In this way it was possible to highlight difficulties that teachers inevitably experienced, as they took on the mantle of learners, and use them as learning points to support teachers in moulding new practices to suit their individual learning styles and teaching contexts.

Refining reflective processes

"The challenge for reformers is to create ... environments in which teachers reflect on their practice and are open to changing their practice when theory and evidence from research and from their reflection support the change." (Parke & Coble)

11 studies provide evidence of opportunities for teacher reflection as part of the CPD process, commonly through coaching (nine studies) but also through action research (five studies). Source material for reflective discussion included:

- classroom observation reports;
- teacher and student diary notes;
- student outcome data; and
- evaluation of draft lesson materials and schemes of work.

Sometimes the process of reflection involved collegial discussions structured as part of the CPD design, such as in the Parke & Coble study where teachers were invited to consider the effects of *"overemphasising memorisation and student parroting back of information"* compared to the effects of engaging students in gathering evidence which is analysed and used to make predictions.

In other cases, reflection was based on deeply personal analysis of lessons through teachers' diaries. In the Brown study, the consultant monitored the diaries on a weekly basis, and provided detailed responses. An example of how these diaries provide not only an indication of the impact of the CPD programme, but a tool for reflection is given below:

"Today I have put the students back into co-operative groups and set them on some character work tasks. I did not this time go over all the key co-operative rules to see how they handled it. They did not click back into it at all... It has been over ten days since they had the concept explained to them so they had forgotten most of it. It was useful because the following problems arose as a result:

- *individuals were finishing way ahead of others while slower students struggled with the material;*
- *some students went off task quickly; and*
- *I had to re-explain my instructions several times. This was a revealing exercise and I found it useful as a comparison."*

This particular teacher later became extremely skilful in the use of co-operative group work.

Likewise detailed notes from the consultant to another teacher following lesson observation provided highly specific feedback and suggestions for improvement: *"Your class discussion on roles was a good idea. By choosing the roles yourself you will have better control of the situation. The working of groups though is much more complex ... In cooperative groups the kids have to get the hang of being responsible for all the members and that really does take a different orientation. It is worth concentrating on the notion of all for one and one for all."* (Brown)

The consultant then goes on to deliver more words of wisdom on team building. Such is only an example of the very detailed feedback which enabled the teachers to reflect on their work, which ultimately led to a noticeable improvement in students' cooperative learning.

There is evidence in another study that teachers needed time to adjust to such detailed analysis of their lessons (Gersten),. Teachers initially reported back in general terms about how they felt the lesson had gone, but later became able to focus on the performance of individual students and in some cases began to voice linkages between specific teaching techniques and changes in student performance.

As part of an action research study into student assessment teachers judged to be exemplary were asked to reflect on their own practice (Ross). Reflection was prompted by questions such as;

- *"what instruments do you use?"*
- *"what works well?"*
- *"how do you adjust your strategies for exceptional students?"*

The data collected were then, in turn, used as a basis for reflective discussion and ongoing development by the other participating teachers in the study.

Reflection on unexpected or disappointing outcomes was also used as a positive learning experience as for example in the Harwell study. When results were identified that were not in line with expectations, the discussion groups turned to questions such as *"Why?"* or *"What do we need to do to change these results?"* In this way the findings *"catapulted the teachers into perusal of the professional literature and eventual redesign of the process."*

Processes for sustaining the CPD over time to enable teachers to embed the practices in their own classroom settings

All of the CPD programmes spanned at least one academic term. Six studies continued over one year with the longest lasting four years. Elapsed time appeared crucial for new concepts and practices to become embedded, for student outcomes to emerge and for teachers to see the benefits of the new approaches:

"While orientation programmes and short term programmes are useful in assisting teachers to gain some perspective, they are unlikely to bring about lasting changes in teaching practices. An important element appears to be the long term support facilitation and reinforcement as teachers try out new strategies, techniques and approaches in their classrooms." (Brown)

Most of the studies also adopted a 'multi-layered approach' which involved several components of professional development. In many cases the CPD involved systems to explore, modify and embed new practices, typically through:

- awareness raising and exploration of alternative strategies;
- trialling;
- reflecting and reviewing; and
- further advice or instruction.

In some cases (three studies) the CPD was explicitly based on several learning cycles. For example, in one study teachers and coaches repeated the weekly cycle of observation, feedback and planning for a period ranging from three to thirty weeks, depending on teachers' needs and interests (Gersten). Such cycles enabled teachers to build up their knowledge and skills, trial new approaches and explore together issues arising through informed discussion.

Through the nature of the collaborative project design strong networks often emerged which offered support, trading of knowledge and sharing of effort which appeared to sustain momentum. While increasing workloads might have affected individual teachers' decisions to continue with the research, the dynamics of the group interaction helped to sustain momentum in at least one study:

"When enthusiasm wanes among the group... certain individuals can through their positive outlook and analytical strengths keep the project moving forward so it eventually bears fruit." (Kirkwood)

Awareness of improved student attainment or more positive attitudes to work also emerged as an important factor in securing motivation to continue the learning process. Thirteen of the studies reported that evidence of improved student outcomes was a strong motivational force. For example, *"Direct and successful work with children served to enhance teacher efficacy."* (Kimmel). The author of the Bryant study which was focused on supporting struggling readers argued that:

"The use of student monitoring procedures seemed to influence both teacher and student behaviour... and could contribute to teachers buying in to the strategies if improved performance is noted."

Case study vignettes: testing and illustrating the EPPI review evidence

Penryn Network

This network, based in Cornwall U.K., comprises of ten schools including Infant, Primary and Secondary schools. Within this network there is a strong history of partnerships involving the sharing of leadership, resources, and in-service training. Head teachers in the network recently initiated a collaborative research project focused on the link between formative teacher assessment and pupil self-assessment, to address the specific issue of improvement of pupils' narrative writing skills. During the first phase of the project the study involved 200 pupils age 10-11 (Y6) in eight schools. The programme has evolved to include over 800 pupils age 7-11 (Y3-Y6).

In terms of the EPPI model of effective CPD, the Penryn collaborative project illustrates the following characteristics:

- use of a story teller as an outside 'expert' who provided joint in service training on motivating and supporting children to write good stories; and
- collaborative in-service training for all staff, including classroom assistants, exploring approaches to formative assessment and pupil self assessment, with the aim of developing a coaching model to support narrative writing.

The project was aimed at creating the right climate of peer support and provided space for teachers to integrate different complementary strategies, for example teachers in one school were keen to trial a 'blocked unit' approach after discussion with an advanced skills teacher. This programme had a positive impact on learning in the classroom. The role of leadership, both by the head teachers and by other 'agents of change' is highlighted as being crucial in generating the dynamism need to sustain such programmes.

The F1 Network

The F1 Network, based in Oxfordshire, U.K., involves nine Primary and Secondary schools. Collaboration is a strong characteristic of this network, which seeks to learn with others from others and on behalf of others. The F1 Network is focused on developing a learning and thinking culture and values opportunities to examine national issues collaboratively and reflect on how these are relevant to their current practice. At a conference involving representatives from the nine schools, the following characteristics of professional development were identified as significant features within the networks:

- peer support;
- peer coaching; and
- collaborative learning.

Anne Hanna reports how her school values peer support and collaborative learning, for example: in mentoring and evaluation of lessons; joint CPD training, and dissemination of new strategies and concepts from professional courses. Outside expertise in the form of a researcher from Oxford Brookes University, has supported staff in their action research project. The researcher visits every half term to provide one to one support and guidance on research methodology and advice on possible strategies to trial in the classroom.

Winsford Education Partnership

The Winsford Network, comprising of 17 schools evolved from a whole town in-service development day which established a vision of collaborative learning committed to addressing the learning needs of the whole community. The Steering Group of the NLC includes Councillors, with one co-leader from the voluntary sector representing 'the town'.

In terms of the EPPI model of effective CPD, the Winsford Education Partnership reflects:

- an emphasis on peer support to create trust, space to take risks, admit need, and generate commitment; and
- scope to identify teachers own CPD focus, to build on individual starting points. Thus one school plans to explore the transition from Key Stage 2 to Key Stage 3 (Primary to Secondary schools) while another school aims to explore how teaching assistants can be trained to offer counselling skills.

In interrogating the EPPI review it was recognised that an area for development was in putting into place processes for effecting the use of time and embedding practice in classrooms (e.g. through course planning). The establishment of six democratic leadership groups e.g. for teaching assistants, head teachers and subject co-ordinators has ensured ownership for all with regard to the areas identified for research. The aim is to explore how professional reflective dialogue can enhance professional development within the network. It is proposed to examine the systems in place, supporting the use of focused professional dialogue, currently operating in other NLCs, and then to evaluate current practice within the network. This will be followed by design of processes to structure and encourage professional dialogue based on improvement of classroom practice in the areas identified by the leadership groups.

Chill (Cheshire Heads Improving Leadership and Learning)

This network, currently comprising of 32 schools has developed over a period of five years and is located in Cheshire, U.K. The network began from mutual interest of the head teachers in collaborative learning. Gradually, whole schools became engaged in the network's programme through a system of 'critical friendships' which supported reflective practice and self evaluation. Leadership is viewed as non-hierarchical in nature. The system of critical friendships operates not only internally within schools, and the network, but also externally. Current links include schools in New Zealand and the U.S.A.

The whole network meets once a term, with the Steering Group meeting on a half termly basis. Each school chooses it's own focus for investigation, for example, Pear Tree Primary School sought the views of all staff including teaching assistants, before deciding to focus on narrative writing. The main issues were explored through open questions such as "*What do we think of as good writing?*" All members of the school community, including pupils and parents, had an input into the evaluation of current practice and suggestions for alternative strategies. Systems of observation and feedback operate in a non-hierarchical climate where staff view the process as learning from each other rather than a one way evaluation process.

The focus for the next stage of network development, will be based on the evidence from the EPPI review that indicated one of the features of effective CPD appeared to be 'scope to identify individual CPD focus'. Using the self-evaluation process that is used throughout the network, the network will examine current practice in terms of identification and provision for the CPD needs of all members of staff whether head teacher, teachers or teaching assistants.

Appendix 1

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