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Studying changes in the practice of two teachers developing assessment for learning

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Abstract

This paper describes changes in the practice of two teachers, observed over an eighteen-month period, who were participating in a study intended to support teachers in developing their use of assessment in support of learning. The design of the intervention allowed each teacher to choose for themselves which aspects of their practice to develop. Analysis of lesson observations, journal entries and interviews indicate that both teachers were keen to change their practice, but were concerned about the disruption to their established routines, and in particular about the potential for loss of control of their classes. Both teachers did effect significant changes in their classrooms, but these tended to be developments of existing preferred ways of working, rather than radical innovations. In conclusion, it is suggested that to be most effective, teacher professional development needs to be structured strongly enough to afford teacher growth, but flexible enough to allow different teachers to take their practice in different ways.

Introduction

There is increasing evidence that the quality of the teacher is one of, if not the most important determinant of educational outcomes for students. Analysis of data presented by Hanushek, Kain, O'Brien, & Rivkin (2005) suggests that students taught by teachers in the bottom decile of effectiveness learn in one year what a teacher in the top decile could achieve in less than six months with the same students. Some critics of traditional methods of teacher preparation have argued that there are large numbers of prospective teachers who would be effective practitioners but who are put off entering the profession by burdensome requirements for certification (see, for example, Hess, Rotherham & Walsh, 2004). However, the evidence from recent studies suggests that teachers admitted via alternate routes are no more effective than those who follow traditional certification (Darling-Hammond, Holtzman, Gatlin & Vasquez Heilig, 2005). In other words, even if one were motivated solely by economic considerations, improving educational outcomes

requires developing the capability of the existing workforce, rather than looking for ways of replacing it.

Moreover, there is evidence that the quality of teaching does improve substantially over the first five or so years of practice (Hanushek, Kain, O'Brien, & Rivkin, 2005), after which teacher productivity appears to level off, and then, according to some studies, decline. However, what can be concluded from this is not at all clear, since it appears that most of the inservice professional development that teachers have received is of poor quality:

Nothing has promised so much and has been so frustratingly wasteful as the thousands of workshops and conferences that led to no significant change in practice when teachers returned to their classrooms (Fullan, 1991, p 315).

There is increasing acceptance that to be most effective in raising student achievement, teacher professional development needs to attend to both *process* and *content* elements (Reeves, McCall, & MacGilchrist, 2001; Wilson & Berne, 1999). On the process side, professional development is more effective when it is related to the local circumstances in which the teachers operate (Cobb, McClain, Lamberg, & Dean 2003), takes place over a period of time rather than being in the form of one-day workshops (Cohen & Hill, 1998), and involves teachers in active, collective participation (Garet, Birman, Porter, Desimone, & Herman, 1999). In addition to these process elements, however, professional development is more effective when it has a focus on deepening teachers' knowledge of the content they are to teach (Hammerness et al, 2005), the possible responses of students, and strategies that can be utilized to build on these (Supovitz, 2001). In addition to all this, teacher professional development must address what Mary Kennedy (1999) called 'the problem of enactment'—the difficulty for teachers of translating what they know about effective practice into coherent action. As Black and Wiliam (1998b) pointed out:

Teachers will not take up attractive sounding ideas, albeit based on extensive research, if these are presented as general principles which leave entirely to them the task of translating them into everyday practice (p15).

In this paper, we present a detailed account of the ways in which two teachers responded to a development project which aimed to change their classroom practice. Thus one main focus of the paper is the process of teacher change. The changes promoted by the project were concerned with formative assessment, so a second focus is on the development of formative assessment practices. Because the impetus for the project arose from a review of research studies concerned to explore the effectiveness of formative assessment practice, a third focus is the task of turning research findings into practice.

Project design

The project (Kings Medway Oxfordshire Formative Assessment Project or KMOFAP) came into being as a result of a literature search by Black and Wiliam (1998a) and a summary drawing out the policy implications (Black and Wiliam 1998b), which found that attention to day-to-day classroom assessment processes produced significant learning

gains for students. However, most of the experiments reviewed were of relatively short duration, and it was not clear whether the learning gains could be sustained over an extended period of time in real classrooms. It was also not clear how to support teachers in making the changes the research suggested were necessary.

The design of the study, and in particular, the selection of the schools and teachers to be involved is described in Black et al (2003) and the details of the impact on student achievement can be found in Wiliam et al (2004). In its first year, the project consisted of a four researchers at King's, two assessment advisors from the participating local authorities (Oxfordshire and Medway) and two mathematics and two science teachers from each of six secondary schools (three in each local authority). The Oxfordshire schools contained students of the full range of achievement but the presence of selective schools in Medway meant that the three participating schools had few able students.

The participating teachers were mostly experienced professionals, with a record of success in teaching. We were however aware from the work of Schön (1991) and others that a practitioner can “over-learn what he knows” (p61) and that “If a situation becomes repetitive and routine ‘knowing-in practice’ becomes increasingly tacit and spontaneous and the practitioner may miss opportunities to think about what he is doing” (p61). We were also clear that different teachers would take on these ideas in different ways, not because of any failure on their part to ‘understand’ our message, but because, for the changes to be more than transitory, each teacher needed to integrate these new ideas into their practice:

[I]f the substantial rewards of which the evidence holds out promise are to be secured, this will only come about if each teacher finds his or her own ways of incorporating the lessons and ideas that are set out above into her or his own patterns of classroom work. This can only happen relatively slowly, and through sustained programmes of professional development and support. This does not weaken the message here—indeed, it should be a sign of its authenticity, for lasting and fundamental improvements in teaching and learning can only happen in this way (Black and Wiliam, 1998b, p15).

In many ways, this approach runs counter to some of the prevailing approaches to teacher professional development around the world, which have provided teachers with detailed lesson plans, such as the National Numeracy strategy in England (DfEE, 1999) or even minute-by-minute lesson scripts in the United States (Goodnough, 2001). Our primary reason for this was not the desire to value teachers’ professionalism for its own sake, although we agree with Atkin (1992) and Whitehead (1989) that this is important. Rather we were convinced that maximising student learning requires that teachers are responsive to student learning needs (Sawyer, 2004). Indeed, flexibility in teaching is an inherent part, if not a defining feature, of effective formative assessment.

The research cited above also makes it clear that the kinds of teacher learning that we wanted to support rarely happens when teachers are learning on their own. Rather we need to create a professional learning community (see Brown, 1997) as envisaged by Fullan (1991):

the science and technology of teaching are continually developing and the job of teaching is an art and a science that teachers study, reflect on, and refine throughout their careers. I see teachers and others working in small groups interacting frequently in the course of planning, testing out ideas attempting to solve different problems assessing effectiveness. Teachers would be continuous learners in a community of interactive professionals. (p142)

The extent to which the teachers in our study did, in fact form a ‘community of practice’ in the sense defined by Lave and Wenger (1991) is beyond the scope of this paper, although it seems likely that while there was a strong degree of mutual engagement and shared goals, the teachers were too different in their approaches to their practice to generate the shared meanings that would be necessary to establish a community of practice (Wenger 1999) or a ‘figured world’ (Holland et al. 1998).

Nevertheless, we hoped that the participating teachers would deepen their knowledge, and ours, of what it means to develop their practice in this way, and we were also interested in how the values they held of themselves as professionals would change (Elliott 1987; Hargreaves 1998).

We were aware that the changes in practice necessary for the implementation of effective formative assessment would not be easy:

Every teacher who wants to practise formative assessment must reconstruct the teaching contract so as to counteract the habits acquired by his pupils (Perrenoud, 1991 p92).

For this reason we planned to introduce the teachers to the research on formative assessment, and to give the time to experiment with some of the ideas before attempting to put these into practice with a class. We arranged three one-day meetings, in February, April and June 1999, during which teachers were introduced to the research literature on formative assessment, and discussed amongst themselves the implications for their practice. It seems that some of the teachers wondered if we had a set of ideas and techniques that would translate straight into his classroom, which we were not revealing because we wanted the participating teachers to discover them for themselves. Thus it was necessary for us to clarify that while we were convinced that developing formative assessment would be a productive direction for teachers, we were not sure about what it would look like in real classrooms, and so we were genuinely in the role of co-learners (Wagner 1997)—the teachers were learning about the ideas of formative assessment and the researchers were learning what those ideas looked like when translated into real classrooms.

At the second and third meetings, they also reported on their own experiences in trying to implement in their own classrooms some of the strategies they had discussed at earlier meetings. At the end of the third one-day workshop, each teacher finalized their ‘action plan’, which detailed the aspects of their practice they wanted to develop and specified the group of students with which they would work on these ideas (in order to minimise the extra effort required we suggested that each teacher should only attempt to develop

their formative assessment practice with a single class, although several teachers ignored this).

During the school year of 1999-2000, members of the research team at King's visited each teacher between four and six times, we held a further four one-day workshops, and the local authority assessment advisors held informal meetings in the participating local authorities. In addition, each of the participating schools undertook to set aside some time during the school day for the four teachers at each school to meet together.

Six of the 24 participating teachers at some point during the project experienced problems and pressures at their schools that affected the way they engaged with the ideas of the project. For example some senior management teams were supportive in principle but not in practice, some teachers had already onerous workloads and little motivation to think about changes in their practice and some principals viewed participation in the project as an opportunity to 'turn around' staff who were disillusioned and in difficulties in their practice.

During the visits to schools, researchers observed lessons, collected data and engaged the teachers in discussion to support reflection on their practice and to explore what might be the next steps although it is important to note that the form of these visits changed over the course of the project. Immediately after the first meeting visits were made to establish a 'baseline' of practice for each teacher and each teacher was interviewed at this time, so that we could establish a baseline for their views and beliefs. Subsequent visits (at intervals of six to seven weeks) gave the teachers a chance to demonstrate how they were translating their ideas on formative assessment into classroom practice, and also an opportunity to talk, one to one, with a researcher about ways of implementing formative assessment that were particularly successful or any ideas that had been raised that were causing them problems. An interim interview was conducted with each teacher early in 2000, and an 'exit' interview in June-July the same year.

The project thus generated a great deal of qualitative data. The three formal interviews were transcribed, and notes of the informal interviews conducted after each lesson observation were also available. In addition, some of the sessions at the one-day meetings were recorded, and we also collected a range of artefacts produced during the meetings.

In the interviews, the teachers were not asked to articulate their theories explicitly, but they themselves frequently volunteered the fact that their underlying theories had changed. Over the life of the project we saw the teachers change the way they thought about and planned their practice. They began to think about ways to access the student's understanding of a topic, to enable the students to articulate what they knew and did not know and thereby allow the teacher to use their professional knowledge to move the students' learning forward. They also shifted from seeing formative assessment as a set of techniques or strategies to identify student learning to something much broader. As one of the teachers, Robert, said, formative assessment "is an approach, almost a philosophy."

Our purpose in this paper is to dig down below these broad statements in order to trace in detail the changes that occurred in the practice of two teachers, Derek and Ceri (all names of schools and teachers are, of course, pseudonyms). At the start of the project, both were

deputy heads of department, had substantial and varied teaching experience, and were each perceived within their schools as highly effective practitioners, although in very different ways. Derek teaches science in Medway, and is garrulous and outgoing, while Ceri teaches mathematics in Oxfordshire, and is quiet and thoughtful. However it is not the contrast that is really important here. Rather our intent is to demonstrate how two very different teachers took on the ideas of the project and used them to develop their own practice.

Derek

At the beginning of the project, Derek was the deputy head of the science department at Century Island School and had been teaching science for almost ten years. He was very keen to be part of the project. He became even more enthusiastic after being shown data demonstrating the success of various research from the Black and Wiliam literature review at the first of our one-day meetings. In an interview soon after he said “I want to do this, I want to see for myself because the figures were astonishing” (Derek, Century Island School, May 1999)

His initial ideas on formative assessment focused on testing—a very common view amongst the teachers. For many the word “assessment” appeared to be synonymous with “testing” although when he and other colleagues at his school were asked, at the beginning of the project in February 1999, “what is formative assessment?” their joint response indicated that they understood the need for assessment to impact learning to be formative:

Formative assessment is: Using testing / outcomes to direct future learning of groups and/or individuals. Providing feedback to individuals on specific skill areas, to enhance their learning (Century Island School, February, 1999).

From this initial focus on testing, however, he quickly embraced more informal ways of assessing although he tended to think of this in terms of the assessment of individual students. His responses indicate that he felt he could only really do formative assessment if he could interview each student individually but that this would be impractical:

I would love, if I had the time and the expertise, if I had 10 minutes set aside every lesson for speaking to a couple of students and then really concentrating on a certain skill area or talking about a test and how they answered questions (Derek, Century Island School, March 1999)

The one thing he could do individually for each student was to provide feedback in the form of comments rather than scores or grades—it had been the results from Ruth Butler’s research (Butler and Winne 1995; Butler 1988) that he had found so astonishing at the beginning. These results implied that the learning gains from making individual comments were significant but that accompanying the comment with a grade or score would negate them. This and other research also showed that indiscriminate praise could be detrimental to the leaning.

As we observed Derek teaching we began to form more of an idea about his characteristics as a teacher. At the beginning of the study, he was very focused on doing a 'good job' as a teacher—in other words he appeared to be more concerned with how he taught, rather than how the students learned. He was particularly interested in techniques or ideas that other teachers had developed, and showed that he was capable of assimilating such new ideas quickly. On one occasion, one of us (CL) had discussed something another teacher had done with Derek, and a few minutes later, he had been able to incorporate this into his teaching (Lesson Observation June 1999).

Derek also picked up several ideas at the one-day meetings, through conversations with colleagues in other schools:

The meetings where we discussed with the other schools what they were doing I picked up some great ideas from those. And it was great when we do meet with the Oxfordshire schools. I was just scribbling down stuff left right and centre and I could see other people doing the same. You know "Oh God that's a great idea write that down, use it". I've tried two or three techniques that I've listened to and got from other schools that was brilliant that, one of the best bits (Derek, Century Island, July 2000).

As he prepared his final action plan, in June 1999, Derek was still focused on improving his performance as a teacher, by thinking carefully about what he was going to say to the class, and what strategy he was going to use to give a good lesson, as is clear from this interview extract:

CL: "Now if she'd read that out to somebody before she handed it in, she wouldn't be handing it in."

Derek: "Which is what I am going to say when I go over it

CL: "So if they'd done just what you did today just for 10 minutes she'd have been coming saying could I just have another day please?"

Derek: "Yes with this class that's probably all it takes it will take a 10 or 15-min session of me saying umm"

(Interview with Derek, Century Island, June 1999)

What is interesting about this exchange is that the interviewer's comments are about encouraging the student to work out her mistakes for herself and to allow her to correct them, while Derek's are about what he is going to say. At this stage, he believed strongly that whether the students learn or not was his responsibility, which made it hard to share responsibility for learning with the learners.

By the end of the summer term in 1999 he committed himself to an action plan on which he had collaborated with Philip, another science teacher at the same school (in the group of 24 teachers, Derek and Philip were the only two who had decided to agree on the same action plan). The basis of this action plan can be seen in the first and second columns of appendix 1. In his action plan Derek focused on three strategies: comment-only marking, self-assessment and questioning. Although we cannot be sure, it seems likely that self-

assessment had been included at Philip's insistence (Philip made much more use of this strategy than did Derek), and it is clear that comment-only marking and questioning were much more important to him.

Comment-only marking provided a way that he could have an input into the direction of each student's learning and so he was prepared to work at making this aspect of his work as valuable to the students as possible. He was also keen to work at his questioning—he was clear that his questions will be “good” if and only if they “test” the understanding of the students.

Early in 2000 the teachers were asked to look again at their action plans and comment on them. Derek's comments are given in the final column in appendix 1. It is apparent that although he continued with the comments and the questioning more or less as planned, his use of self-assessment strategies had evolved into another form of whole-class discussion. In the summer, he wrote about his work on questioning

Increasing waiting time after asking questions proved difficult to start with - due to my habitual desire to 'add' something almost immediately after asking the original question. The pause after asking the question was sometimes 'painful' but I persevered. Given more thinking time students seemed to realise that a more thoughtful answer was required. Now, after many months of changing my style of questioning I have noticed that most students will give an answer and an explanation (where necessary) without additional prompting. If a student gives a one word answer where an explanation is required, rather than adding a prompting question (as I would have done in the past), a pause is an effective way of indicating that more information is required. The student looks for my response, none arrives and the realisation hits them. Additional thinking occurs, followed by an explanation. (Derek, April 2000)

His experience with the project has made Derek keen, perhaps even evangelical, about disseminating these ideas to other teachers. He enjoys speaking to an audience, and is in demand for teacher professional development sessions:

So give it a go, start small, try it out, don't be afraid for things to fail, they will, don't be afraid to change things. People might say try this, try that, change it to meet your own needs, adapt to meet the needs of your class and your teaching style and just basically give things a go. And don't be afraid to ask other people to observe to comment on, you know, what you are doing. It works and you know, in all my dissemination my last, my closing point has always been give it a go and you won't turn back. And that's it really. (Derek, July 2000)

Derek's practice has also continued to evolve. It is unlikely that a year earlier, Derek would have said:

I'd be looking for students having an ownership of their learning having some input in the way things went. I don't think it should be entirely the teacher saying this is what we are going to do and the student saying, yes this is what we are going to do. There needs to be some sort of discussion between teacher and student as to what goes on in lessons. (Derek, July 2000)

He has also integrated strategies for student self-assessment such as ‘traffic lights’ (in which students signal their level of understanding by using red, yellow or green) into his practice and now uses them regularly:

I’ve also done it [a key word list] for ... biology, physics and chemistry. I may have given you copies of those, and the students filled those out with traffic lights and they were very useful. Not only for them, to focus their revision but also for me to focus my teaching for next year and obviously for other year 9 classes. So I now see where I’m not teaching it, I don’t think, very effectively, even though I thought I was. It’s quite interesting. (Derek, July 2000)

There are still traces of the ‘old Derek’; the traffic lights not only guided the students in their revision. They also showed Derek something about his teaching. However, he now appears to be convinced of the value of allowing the students a voice and then tailoring his teaching accordingly. Of course we can never know exactly how that change came about, but we do know that he heard a great deal from the other teachers in the one-day meetings, and from Philip, his colleague in the science department, about the value and importance of self-assessment. We know that the change in his practice has helped his students—their test results show a strong positive effect from his work. Being part of the project has had a strong positive effect on him as well. He was appointed head of the science faculty in 2000, and his colleague, Philip, was promoted to his former post.

The latest observations of Derek’s teaching (June-July 2001) show him to be an extremely skilled leader of whole-class discussion; the style of his questions and the pace of his lessons invite full and thoughtful answers from his students. These answers allow Derek access to his students’ understanding and he can be seen adapting his teaching in response to his students’ needs. The difference from the rushed lessons that we saw at the start of the project—where he would hardly allow time for the students to think—could hardly be more marked.

Ceri

Ceri had been teaching for about twelve years when the project began and was the deputy head of the mathematics department at Two Bishops School. For her, the key index of success was the performance of her students in public examinations and this meant keeping a strong hand on their work. In her classroom, students worked quietly on the exercises given and asked for help when they were stuck. She marked everything they did and kept meticulous records on the scores and grades achieved by each student. She placed great value on summative assessment, the quantity of marks in her mark book being testament to this. At the first one-day meeting, she and her colleagues from Two Bishops School had written: “Marks give a sense of where they are—comment gives sense of direction” (Two Bishops School, February 1999)

Like Derek, Ceri had been struck by the distinction between comments and marks. She was concerned about this when interviewed, as the following extract from field notes made shortly after an interview illustrate:

She does not want to stop awarding a mark as she records this in her markbook and this alerts her in the lesson to who needs help with a particular topic or who will be given a merit. However she can see how this may mean that the students do not read the comments that have been written. She drew parallels to her own experience in being offered a debrief after a job interview; once she knew that she had not been given the job she really didn't care what they thought of her (Notes on interview with Ceri, May 1999).

In the interviews Ceri frequently used anecdotes that related the ideas presented to her to her own experience as she did above, and she was concerned to preserve and enhance the self-esteem of individuals, so, for example, she was reluctant to ask a student to answer a question if they had not raised their hand in case they got the answer wrong and felt belittled by this. At the start of the project (March 1999) we observed lessons that were rather formal in structure and organisation, with the class sitting in rows, and the questions demanding only one-word answers. She frequently told the students to check their own work but gave them no further guidance on how they might go about this.

However, her ideas about formative assessment developed quickly and she was one of the strongest contributors to discussions during the one-day meetings. She also adapted contributions from others to fit her own circumstances. In early May 1999 one of us (CL) observed a lesson where Ceri wanted her students to understand what they needed to do in order to prepare for an examination they were to take within the coming weeks. In the past, she said that her routine had been to give them a practice examination in which she would have read out all the questions, then all the answers and told the class to work on what they had wrong. The students would have listened quietly as she explained all the answers whether they needed explanation or not. However as a result of her reflections on formative assessment, she said that she had changed her usual style and organised the lesson in the following way:

Break down the test into short chunks of five questions

Ask the five questions then ask the students to reflect on their answers and decide which one they are most unsure of

Ask each student to say which question they needed help with most

Explain this question in depth

Give the answers to the other four and check that the students are reasonably happy with them. If not go over any that need it.

Ask the next set of five and so on (Notes on Ceri's lesson, May 1999)

She said that the important thing to her was that the students should tell her what they needed to learn and this was an important aspect of her thinking throughout the project. This priority featured prominently in her action plan and she also mentioned it in two subsequent interviews.

However, like Derek, she believed that she needed to maintain control of the classroom in order to maximize student learning. She decided the topic of the lesson and how much time would be spent on each topic. She did plan opportunities for the students to reflect and decide on any problems they had encountered during the topic but this was primarily so the students could tell her how to adjust her teaching. This was most evident in examination classes where lessons were devised to help them survey all the topics they had covered so far in order to decide as a class, which they needed to work on most (lesson observation November 1999). However she used it to some degree in all her classes. For example her Year 8 class (ages 12-13) were regularly invited to write a comment on their work and any problems they were having, to which she would respond either in writing or orally in the next lesson (interview, March 2000).

In the action plan she drew up in the summer of 1999 (Appendix 2) Ceri identified seven techniques that she wished to develop (most teachers, like Derek, had identified three or four). In strong contrast to Derek, all the techniques focused on greater student involvement in learning, by ensuring her students understood the criteria for success, combined with a variety of techniques for self-assessment, peer-assessment and peer-tutoring.

Over the subsequent months, Ceri's ideas about responsibility and control changed in subtle ways. She still controlled what was to be learned, and the structure of the lessons, but students were increasingly responsible for setting themselves targets, and for improving their own work. An extract from field notes of a lesson observation illustrates this:

She is aware that she needs to let them make decisions, to take control of their work and therefore their learning but it is hard for her, as her normal way of working is to organise everything. This is her way of moving towards changing that locus of control. She says it will take time but that she is certain it is the right way forward (lesson observation, October 1999).

By Easter 2000 Ceri's beliefs about what makes a good lesson had developed considerably:

Sharing your aim with the pupils and also taking whatever you do with them in terms of assessment and making it meaningful as to what you do next. And so if assessment shows you something then it's what you do next with that knowledge to make it formative and not just right OK you didn't know how to do those. It's getting more behind why they got them wrong and where you can go next, it is moving forward. So it is assessment that tells you something about what you need to do next and what they need to do next. Rather than just assessment for assessment's sake. (Ceri, April 2000)

As with Derek, Ceri's practice has continued to develop and her career has prospered. She was promoted to head of department, and then to assistant principal, although she continues to teach, and her focus continues to be on self-assessment and allowing the students to take over some of the control of how far and how fast the lesson move. She continues to develop ways that the students can reflect and be in a position to "tell her what they need to know."

Discussion

Like most of the other teachers in the project, Derek and Ceri have both taken up the ideas of formative assessment and have used them to improve the learning in their classes. They changed their practices and have talked about changes in their values and beliefs as professional teachers. However, they are still very different teachers. Although she still maintains strong control of the lesson, Ceri encourages the students to understand what they are meant to be doing, and then assess themselves, so that they are able to give her the information she needs to plan future lessons. But she still sets tests regularly and ranks the scores so that students can see where they are against others in the class. Derek makes more use of self-assessment than he did but his main focus has been on the changes he has been able to make in his questioning and the way he provides feedback to his students. The most obvious change in his practice is the way he values the thoughtful responses of the students he teaches.

These two teachers continue to develop their ideas on formative assessment and are powerful advocates for these ideas in the conferences and teacher workshops in which they are regularly asked to participate.

Given the complex nature of the project, and the fact that there was no clear experimental 'treatment', it is impossible to know what precisely caused the significant changes in the practice of Derek, Ceri, and the other teachers in the KMOFAP project, but through our observations of, and interviews with, those involved in the project, six issues seemed particularly important.

Credible evidence

Many of the teachers reported that the research evidence contained in the original review of literature (Black and Wiliam 1998a) provided the stimulus and motivation to engage in the struggle to change their practice. The effect sizes reported in the research surveyed were impressive and in the prevailing climate in England, where there is considerable pressure to raise student achievement, this was a strong motivating factor for many teachers.

Practical ideas

An important element in the rapid acceptance of the principles of formative assessment was the fact that we were able to give the teachers some practical strategies that they could use immediately. Perhaps inevitably, these were sometimes used rather mechanistically by some teachers at first, and for the first few months, little seemed to be changing, but the success of these simple starting points apparently gave the teachers confidence to adapt and modify them, and, later, to generate some of their own ideas. The danger here, of course, is that teachers come to see a particular set of strategies as defining formative assessment, so more work needs to be done to determine what is the minimum, in terms of concrete ideas, that is needed to get the process started.

Support

The support of working as part of a professional learning community seems, from interviews with the teachers on the project, if not essential, then at least highly desirable, to make sure that the ideas take root. The participating teachers valued the motivation of

this ‘support,’ this community of like-minded individuals, in beginning the process of engaging with these ideas, but also talked about how important the structure that such a community provided. Several of the teachers (including Derek) mentioned that the fact that someone was coming to watch them putting into practice the commitments they had made in their action plans was a strong motivating factor in ensuring that they gave attention to developing formative assessment.

Reflection on, in and about action

The structure of the intervention—the way the one-day meetings were planned and the observation and feedback were scheduled—were designed to prompt both immediate reflection on action and deeper reflection that can provide new insights and perspectives. The sharing of presenting information and the collegiality of the way the teachers responded to the information, all provided a supportive environment for sustained reflection about action.

Time

The changes in the teachers’ thinking, and in their practice, took a long time. Although the teachers’ thinking had clearly been influenced by what they had heard about the research and the associated strategies, it took a long time to integrate these new ideas into their practice. Indeed, in January 2000—almost a year into the project—we could observe only modest changes in classroom practice, and it would have been tempting at that point to conclude that we needed to do something different. However, a few months later, things appeared to ‘fall into place’ for many of the teachers, and radical changes in classroom practice could be seen. It is also worth noting that although each school principal committed the school to finding time for the four teachers in each school to work together, this rarely happened. Derek and Philip commented that the only time they ever got to talk to each other about formative assessment was at the one-day meetings in London. Given the pressure on teachers’ time, and the fact that the daily and weekly rhythms of school-life create such a strong framing for teachers’ work, it seems prudent to plan on the basis that the only time available for teacher professional development is that which is specifically set aside for this purpose. Certainly we found that the only way to get written reflections from our teachers was to set aside time during the one-day meetings specifically for this purpose.

Flexibility

A final feature of the intervention that appears to have been important is the idea that each teacher could take on as much, or as little, of the ideas with which they were presented as they wanted to. As noted above, much teacher professional development seeks to ‘tell teachers what to do’. However, unless teachers are supported in integrating new ideas into their existing practice, then any changes produced tend to be minor, and transient. In seeking to explain why teacher change is so difficult to those who have never been teachers, we have suggested that asking a teacher to change their practice is like asking a golfer to change his or her swing during a tournament. Teachers are required to maintain the success they obtained with their old routines while developing new routines at the same time. Many teachers told us that the fact that they could decide which techniques to try, and the rate at which they tried them out, was crucial to their success—the control of the process was empowering.

Conclusion

For Derek and Ceri (and for most of the other teachers in the project) it appears that control of the change process was essential for them to relinquish some of the control of the learning process that is so necessary in implementing formative assessment. In his journal Derek was initially reluctant to take this step, and when he did so, he described how dangerous it felt to leave empty time for the students to think of an answer to his questions. Ceri spoke about her feelings of insecurity about ‘losing control’ of her classes while at the same time being convinced that it was necessary:

But you do, you have to, you have to allow them the freedom to take the lesson their way for a little while and then pull it back together. And I think there are times when you think, are they getting as much done as you would expect them to be getting through? And I think perhaps they don't get as much written down but it's probably, the understanding's probably better by the fact they have shared the ideas and the thinking time but it's not such tight control (Ceri, March 2000).

By any standards, both Derek and Ceri are better teachers now than they were—they exhibit more of the practices associated with high-quality teaching, and the achievement of their students is higher. However, there has been no convergence towards an ‘ideal’ teacher. In his classroom, although his focus is on getting the best out of his students, Derek is still very much ‘in charge’, rather like the conductor of an orchestra—he sees it as his job to draw out of students the information that he needs to help the students. Ceri is also in charge of her classroom, but in a much more low-key way, and in her classroom she is rather like the management consultant who needs the client to identify the problem so that she can help. Given what they were like at the start of the project, neither of these trajectories is surprising—their classrooms are very much a reflection of their personalities. And while the observation that a teacher’s practice is strongly dependent on their personality is somewhat of a truism, it appears that this is often ignored in the design of teacher professional development, particularly now when there is such a strong emphasis on establishing ‘what works’ in teacher professional development.

The problem with the ‘what works’ approach is that it leads to models which have the greatest effects, on average, across all teachers. It seems highly unlikely that either Ceri or Derek would have benefited from being pressured to introduce the changes favoured by the other. The challenge, then, is to design structures of teacher professional development that are strong enough to afford strong professional learning while at the same time flexible enough to take account of the differences between teachers.

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Appendix 1: Derek's Action Plan January 2000

Year Group	Strategy (as formulated July 1999)	Comments (January 2000)
7, 8 and 9	<p><i>Comment-only marking</i></p> <p>Comments will focus on key skill area (no more than two per comment) e.g. understanding, comprehension, presentation, spelling, use of scientific terminology etc.</p>	<p>Easy! Takes the time but is my "style" students have never asked for grades.</p>
	<p><i>Traffic Lights</i></p> <p>Students mark work with colour each lesson or small section of work</p> <p>Towards the end of each module students are asked to re- evaluate their 'amber' markings and opt for now putting them as 'red' or 'green.'</p> <p>Students are now asked to pick out their three priority 'red' marks (or less if appropriate).</p> <p>New 'red' marks (and old ones) are listed on review card called "Things I'd like to improve"</p> <p>Lesson given for students to discuss their 'areas for improvement' in small groups.</p> <p>Any 'common' areas can be revisited prior to unit test.</p> <p>Longer term:- just prior to End of Year or SATs exams, a further review based on all the cards can be carried out, over several lessons. This will allow prioritising revision areas.</p>	<p>Not too successful. Nearly all green – But some may find it useful</p> <p>Yes but very few amber so not very appropriate.</p> <p>Not relevant</p> <p>No didn't need it</p> <p>Altered to discussion of subjects – random – v. successful</p> <p>Not relevant</p> <p>Probably not – More likely to use "discussion" methods</p>
	<p><i>Questioning</i></p> <p>Formulate list of 'good questions' For testing understanding</p> <p>Questions for verbal and written usage - class and homework</p> <p>Students in one set to produce 'good' questions for students in other sets.</p>	<p>Tend not to – Tend to concentrate on ensuring open questions.</p> <p>Some not much, but have used them for Hwk.</p> <p>Some success – Took time for 8Q to appreciate good questions.</p>

Students will be coached on how to write
such 'good' questions

Getting better- now need to
work on answers

Appendix 2: Ceri's Action Plan June 2000

Year Group	Strategy (as formulated July 1999)	Comments (January 2000)
Year 11 Set 1 & Set 5	<p>Pre test (October time) a higher tier (1 hour) paper. They mark someone else's paper with a proper mark scheme and try to identify 3 focus areas for the other student. Pair up students. Re - test with mock paper, I mark and then group in 4's High /Middle ability and Middle/Low ability, go over questions and write solutions in another colour (green). I then go around groups and listen to the explanations individuals are giving and try to come up with some 'good' questions.</p> <p>Use higher tier syllabus sheets and adapt so that traffic lights system can be used with dates. Focus on these sheets as revision - get the students to tell me what they need more practice at. Try to avoid 'me' telling them what we are going to have more practice at! Work at changing 'red' lights into amber/green lights.</p> <p>Coursework Aim to improve scores. Select pieces from last year's year 11 and ask students in present year 11 to mark them and give them levels. Good questioning to ask students why some pieces are better than others. Then introduce their own piece of coursework and show them the marking criteria.</p> <p>Students make up their own questions on topics for homework - then they give them to others to solve.</p> <p>Involving students in the aim of the lesson, getting them to identify things they know at the end of the lesson that they didn't know at the start.</p> <p>Pairing - up of students to encourage students giving explanations to others</p> <p>Posters to sum up topics and for students to show what they know at the end of topics.</p>	<p>Good for students to see real mark schemes</p> <p>Stress the importance of method</p> <p>Careful planning of groups: 2 friends?</p> <p>Students stick sheets on inside of book cover or put in folders - update regularly</p> <p>Will we ever go back from green to amber or red?</p> <p>Spend longer introducing and discussing coursework</p> <p>Focus on questions which get progressively more difficult. Make up mark schemes. Also get students to answer their own questions</p>

Also good as a revision resource

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