

# TEACHER DEVELOPMENT FOR FORMATIVE ASSESSMENT

BEVERLEY BELL<sup>1</sup> AND BRONWEN COWIE<sup>2</sup>

1. *Department of Professional Studies, University of Waikato*
2. *Department of Mathematics, Science and Technology Education, University of Waikato*

**ABSTRACT** *This article reports on the teacher development that occurred during a two-year research project on the formative assessment practices of primary and secondary school teachers of science. The teacher development involved the teachers' professional, personal and social development. The project focused on clarifying what it was that served as formative assessment in the classroom. Personal development focused upon appreciating the risks and uncertainties involved in responding to what students are learning and acknowledging the importance of teacher confidence. Social development involved a re-examination of the nature of student-teacher interactions and of the complex and often contradicting roles of the teacher in relation to teaching, learning and assessment.*

## INTRODUCTION

Whilst the value of formative assessment as a way of improving learning outcomes is indicated in the research (Black & Wiliam, 1998), its value is also being acknowledged by an increasing interest in providing teacher development in this area. In this paper, formative assessment is defined as:

the process used by teachers and students to recognise and respond to student learning in order to enhance that learning, during the learning (Bell & Cowie, 2001).

This parallels those definitions of Black (1995), Gipps (1994), Perrenoud (1998), Sadler (1989) and Torrance and Pryor (1995). A fuller discussion of formative assessment can be found in Bell and Cowie (2001). Formative assessment differs from summative assessment in that summative assessment has the purpose of monitoring learning for reporting rather than being used directly to improve learning:

Assessment has multiple purposes. One purpose is to monitor educational progress or improvement. Educators, policy-makers, parents and the public want to know how much students are learning compared to the standards of performance or to their peers (National Research Council, 1999, pp. 1-2).

This paper reports on the teacher development that occurred during a research project investigating formative assessment in science education. The research was mainly qualitative (Burgess, 1985; Smith, 1987), interpretive, collaborative

(Bell & Cowie, 1999) and guided by the ethics of care (Brickhouse, 1992; Lather, 1991). Multiple data collection techniques were used, including interviews, surveys and participant observation. A fuller documentation of the research methodology is given in Bell and Cowie (1997).

The research had three strands:

1. *Ideas about assessment*: In this strand, the views of assessment of 10 teachers and some of their students were elicited at the beginning of the research and monitored throughout the project. Data for this strand were collected through interviews and surveys.
2. *Classroom-based studies*: In this strand the classroom assessment activities, and in particular the formative assessment activities of the 10 teachers and their students, were studied and documented in the form of case studies. Case studies were chosen as one level of analysis to investigate the multiple and integrated social and cognitive processes involved in formative assessment. Data for this strand were collected by participant observation involving field notes, head notes, and documentary data such as the writing on chalk and whiteboards, student books, wall displays, teachers' plans for the unit and the teachers' record books.
3. *Teacher development studies*: Although the focus was research (Bell & Cowie, 2001), the project intentionally included development activities (Bell & Cowie, 1999). Therefore, 11 teacher development days were held over the two years (1995-1996) of the project (see Bell & Cowie, 1997, Appendix 1).

It was felt necessary to include a developmental strand in the research project for four reasons. Firstly, the researchers held a view that the research process should have reciprocal purposes and gains for both the teachers and researchers. However, these gains may not be the same. Whereas the main aim for the researchers was the creation of new knowledge about classroom-based assessment, teachers in previous research projects had indicated that they often got involved in major research projects for the opportunities for professional development. The teachers valued these opportunities for sharing ideas with other teachers, time for reflection, the input of new theoretical ideas and classroom activities, the support for trialling new classroom activities and for the information about wider educational developments (Bell & Gilbert, 1996). These activities could best be fostered in the teacher development days although it is acknowledged that they also occurred in the data collection activities of interviews, surveys and classroom observations.

Secondly, the researchers felt that the teachers did not necessarily have the awareness and language to discuss the phenomenon being researched, that is, formative assessment. It was felt that some professional development activities would enable the teachers to develop their skills of and knowledge and language about formative assessment so that they could discuss it in a way that would aid the data collection and analysis for the research. The discussion in the interviews also aided in this.

Thirdly, the teacher development days were included so that the teachers and researchers could meet to discuss the emerging data analysis. The discussions provided a secondary data generation and collection opportunity

for the researchers and further reflective opportunities for the professional, personal and social development of the teachers (Bell & Gilbert, 1996).

Lastly, data to inform future teacher development courses on classroom-based assessment were sought. Hence, the research was investigating the existing assessment practices of the 10 teachers as well as investigating their developing assessment practices over the two years of being involved in the research project. The 11 teacher development days enabled the teachers and researchers to:

- reflect on past and future assessment practices in science classrooms;
- learn about new ideas for assessment in science classrooms from each other or from guest speakers;
- discuss the trialling of new assessment activities in their classroom in-between meetings; and
- discuss the data analyses and emerging model of formative assessment.

These four activities had been shown to promote teacher development (Bell & Gilbert, 1996) and the format of the 11 meetings was based on these research findings. Details of the actual teacher development activities are documented in Bell & Cowie (1997, pp. 260-261).

## **TEACHER DEVELOPMENT**

Teacher development is a process of learning which involves professional, personal and social development (Bell & Gilbert, 1996). All three aspects are involved in teacher development for formative assessment. Professional development as a part of teacher development involves not only the use of different assessment activities by both teachers and students but also the development of the beliefs and conceptions underlying these activities.

Personal development, as part of teacher development (Bell & Gilbert, 1996), involves each individual teacher constructing, evaluating and accepting or rejecting the new socially constructed knowledge about what it means to be a teacher (of science, for example). It also involves managing the feelings associated with changing their activities and beliefs about education, particularly when they go "against the grain" of the current or proposed socially constructed and accepted knowledge (Cochran-Smith, 1991, p. 279).

Social development, as part of teacher development (Bell & Gilbert, 1996), involves the renegotiation and reconstruction of what it means to be a teacher (of science, for example). It also involves the development of ways of working with others that will enable the kinds of social interaction necessary for renegotiating and reconstructing what it means to be a teacher.

It is acknowledged by us that these three aspects necessarily interact and are interwoven but, in the next sections, each aspect is foregrounded to highlight the complexity of both the processes of formative assessment as it is enacted in the classroom, and the challenges to teachers changing and/or enhancing their formative assessment practices.

## PROFESSIONAL DEVELOPMENT FOR FORMATIVE ASSESSMENT

The first aspect of professional development for formative assessment that occurred as a part of teacher development was the articulation and clarification of concerns about classroom assessment in general. In the first year of the research (1995), the teachers' main concern was with how formative assessment might be differentiated from and interfaced with the other assessment developments and issues in New Zealand schools. At the time, these issues were about recording and reporting, especially to parents and for the purposes of the Education Review Office's auditing and accountability reviews; some of the Ministry of Education's policies on assessment; and assessment of learning with reference to the (then) new science curriculum. In discussing their concerns, the teachers were able to clarify the multiple and often contradictory purposes for classroom assessment. The teachers' concerns highlighted that teacher purposes for assessment, including formative assessment, could not be considered in isolation from national, state and school policies on assessment and the realities of schools and classrooms. For them, formative assessment was a highly contextualised activity and hence it can be theorised as a sociocultural and discursive activity (Bell & Cowie, 2001).

In the second year of the research project (1996), the discussions during the teacher development days tended to be more focused on formative assessment. The agreed definition of formative assessment was that it involved actions to recognise and respond to student learning. Despite this, the nature of formative assessment was the subject of ongoing debate. For some of the teachers the shift to a focus on formative rather than summative purposes was a major shift in terms of how they thought about assessment in relation to teaching and learning.

The significance of the two different purposes (formative and summative) for doing classroom assessment for teachers and students is pertinent here. For many of the teachers, the manageability of assessment in the classroom meant that they used the data they collected for both formative and summative purposes. For the students, the use of the same data for formative and summative purposes, particularly when the teacher's purpose was revealed only when the teacher responded to what was disclosed, placed them in a situation of uncertainty and risk (Bell & Cowie, 2001, p. 104-112; Cowie, 2000). Do they disclose their confusion or lack of understanding if the formative assessment information may also be evaluated and responded to publicly within the classroom thereby reporting on their learning to their peers and affecting their self esteem and their relationships? Will what they disclose be reported informally to other teachers in the staffroom and impact on their reputation and relationships with them? Will the information they disclose during a private formative interaction be reported to their parents in a parent-teacher interview?

Developing a taken-as-shared notion of formative assessment and a shared language with which to discuss it, was an important aspect of the clarification of the nature and purpose of formative assessment. Whilst the teachers were already doing formative assessment, it had been largely a tacit part of their teaching. The professional development task for the teachers was

to identify which aspects of their classroom practice were classed as formative assessment and why. They valued the opportunities to articulate what it was they were doing that could be called formative assessment in order to construct the notion for themselves. They brought anecdotal examples (Bell, 1994) of their practices to the group and it was negotiated as to whether they were or were not formative assessment.

The development of a model of formative assessment (Bell & Cowie, 1999; Cowie & Bell, 1999) was an activity that greatly enhanced the development of a shared language and a taken-as-shared notion of formative assessment. In the afternoon of each development day, the teachers were asked to consider what they thought "formative assessment" was and how they might describe it to other teachers outside of the research project. Their collective ideas and representations were written on a whiteboard and rewritten on the whiteboard at the start of each successive afternoon. The whiteboard was a changing snapshot of the collective thinking at the end of each teacher development day. We felt that the use of a diagram (Cowie & Bell, 1999) was a valuable thinking-language tool for the clarification of what the term "formative assessment" meant and what it was that the teachers did when they were doing formative assessment.

The whiteboard discussions were a critical factor in the teachers' realisation that purpose is pivotal in teacher assessment understandings and actions (Cowie & Bell, 1999). The group, as a whole, shifted from a focus on strategies to elicit information on student learning to "taking action" on the assessment information, after one teacher (Teacher 4) suggested the "purpose" be moved into the centre of the cyclic process of generating, interpreting and responding to information of student learning. After this, the talk changed from formative assessment activities to formative activity and interaction. Alongside this was the collective recognition that formative assessment, which was immediately and intimately responsive to what a student knew, understood or could do, was embedded in student-teacher and student-student interactions. This was a significant breakthrough; a finding that is repeated in the work of Moreland, Jones and Northover (in press).

The sharing of teaching activities through anecdoting (Bell, 1994) was also a valued part of the professional development (Bell & Cowie, 1997, pp. 266-267). Anecdoting involved the teachers sharing their professional knowledge by telling anecdotes about what happened in their classrooms. The activities shared included specific formative assessment activities, learning activities that created opportunities for the teacher to carry out formative assessment, and ways to introduce flexibility to the school scheme or curriculum. The sharing of classroom activities and, hence, hearing how other teachers had used an activity, was an important preparation for doing formative assessment. Knowing about formative assessment is necessary but not sufficient for its use in classrooms. The teachers reported that they needed to know about a strategy, understand how it functioned and why they might use it, have the skills to use it in action, and be able to recognise it in the moment when it would be useful. One teacher explained the importance of these aspects for the spontaneous use of formative actions thus:

. . . The strategies just sit there and wait and when you get to one, you recognise it . . . But could you do the same thing if it (the strategy) was sitting in a book somewhere and you read it the night before? It's an interesting question. That's what we're talking about here . . . In that case, I was pulling it out of a repertoire, rather than (planning ahead to use it) . . . you've got to have the strategy sufficiently on board so that with the people in front of you can not only think of the strategy, but you can do it (Teacher 9, 1996).

Another aspect of teacher professional development for formative assessment was the teachers' recognition of the existence and importance of their professional knowledges. To do formative assessment more deliberately, the teachers had to develop their knowledge of views of learning, the role of the teacher in mediating the students' learning, and their scientific knowledge so that they could judge how the students' knowledge was positioned with respect to that of a scientist.

For example, Teacher 9 used information about what sense the students were making of a practical activity, to refine her purpose for the activity (Bell & Cowie, 1997, p. 196). In this case, she told the students that her purpose for the activity was to check that they were able to generate hypotheses, then design and carry out a test. She said she considered the activity would provide her with an opportunity to assess their practical skills. After the lesson, once she had seen the diversity of solutions the students had generated, she decided "the focus would be different methods rather than the best". This focus enabled her to validate and encourage a diversity of thinking within the class, which was one of her stated long-term goals. The interplay of her long-term and short-term goals was important on this occasion. Her formative assessment information enabled her to use the activity to promote one of her long-term goals within the framework of a short-term goal. The flexibility of her purposes for the activity meant that the criteria she used to judge the students' thinking and actions were both pre-determined (could they use scientific ways of investigating? - a short term goal) and emergent (being able to generate a number of solutions to a problem was valuable - a longer term goal associated with promoting student thinking and appreciating the limitations of a science activity). The knowledges used by the teacher to make changes to her teaching to improve the learning by the students involved the use of her scientific knowledge, her knowledge of the intended curriculum and her knowledge of a range of teaching and learning activities.

Another aspect of the professional development for formative assessment was that the teachers constructed formative assessment as a joint and reciprocal activity. They considered their actions and interactions functioned as information for students, just as student actions and interactions served as information for them. On teacher development day seven, the group of teachers described the reciprocal nature of formative assessment thus:

Think of it from the kid's point of view, the kid gathers information from what you've given them already, they filter it, decide what's relevant to them, they interpret what they need to do

however they like, they act on that information, and then from whatever you do or from whatever things happen, they gather more information and so on.

So it works exactly for them. It's just that our acting becomes their gathering information points.

Whatever we do . . . they get the information from . . .

And their acting is our gathering (Teacher development day 7, 1996).

Thus, the teachers indicated that they were aware that all aspects of the process of formative assessment, not just explicit feedback, served as information to the students about their learning and themselves as learners. The students' comments also highlighted the reciprocal nature of the assessment process. Their concerns about disclosure (Cowie, 2000) indicated they were aware their actions served as information to peers and the teacher.

As a part of their professional development, the teachers also constructed the notion that doing formative assessment also meant encouraging specific kinds of interaction in the classroom, in which feedback and feedforward was given. After Sadler (1989), we use the term "feedback" to refer to a response during formative assessment on information elicited about the student's learning in relation to what the teacher intended the student to learn. Feedback was given to the students about whether they had reached the desired learning goal and how they might achieve the goal. We use the term "feedforward" to refer to a response that sought to help students build their understandings, both in the short and long term.

## **PERSONAL DEVELOPMENT AS A PART OF TEACHER DEVELOPMENT**

The second aspect of teacher development for formative assessment was that of personal development. As stated already, personal development, in the way it is used here, includes the ways each teacher managed the feelings associated with the process of formative assessment. The teachers as a group acknowledged that formative assessment involved uncertainty, given that it was likely to disclose that students had a variety of views and understandings, to which the teacher needed to respond. The teachers reported they tended to be more responsive to student learning if they were not stressed or feeling ill. As one teacher pointed out, student actions and reactions affected their willingness to engage in formative assessment and hence was driven by and involved teacher (and student) feelings:

The other thing that is important is that we have feelings, as kids have feelings and if a kid . . . treats you in a way which is inappropriate, you're less likely to feel inclined to sit down and help them (Teacher 3, 1996).

The teachers claimed that their formative assessment was motivated by care for students - care for them as learners and knowers of science.

Building on this, two aspects of teacher personal development appeared to be crucially related to teacher formative assessment actions and interactions. These were: teacher attitude to uncertainty and risk, and teacher confidence.

Responding to student ideas as a part of formative assessment involved uncertainty and risk because the responses could not be completely preplanned (Bell & Cowie, 1997). Hence, teacher tolerance of uncertainty appeared to influence their practice. For instance, Teacher 7 described her "relief" that her posing a question to elicit student views and stimulate a discussion about density had gone "nice and smoothly" (Teacher 7, 1996). She noted that students did not always want to "bother" discussing an idea and so the strategy was "risky". On this occasion, she commented that it had provided her with intriguing insights into the connections students had made, as was illustrated by the student-initiated question as to why the classroom did not rise up when the heaters when on. In contrast, Teacher 3 meticulously prepared and implemented a lesson on electric power by assessing the students' understanding of each step of his prepared sequence. He noted his approach had been "fairly well set". He did not appropriate and build on student ideas in the moment. This produced a situation that was much less ambiguous and uncertain for him but it was difficult to determine the sense the students were making of the activities (Bell & Cowie, 1997, p. 177).

Teachers' confidence in their ability to teach, in their understanding of the relevant subject knowledge and their knowledge of students mediated their formative actions (Bell & Cowie, 1997). This was amply illustrated when one of the teachers found that her students were confusing the effect of heat on solids during an activity she had intended to elucidate the effect of weathering on rocks (Bell & Cowie, 1997, p. 112). The teacher described her formative action as intended to encourage the class to deconstruct the idea of expansion and contraction:

Is that what you call deconstructing? . . . Breaking it down and finding out what the bits are. What bits have we got? I think the bits were all there but they just had them in the wrong order. So we had to take the concept apart and see what is was we were trying to find out (Teacher 5, 1995).

And then to reach a consensus:

I'd given some sort of clue as to what we were going to do. We were going to have to agree on something and it was either this or that. Nothing in between (Teacher 5, 1995).

Confidence in her (i) understanding of the science, (ii) pedagogical skills and (iii) knowledge of the students played an important role in her spontaneous action. She was confident that she understood the science as "there is no doubt about what heat will do to metals". She was confident, based on her experience



of teaching the topic (her pedagogical content knowledge), that the students would have everyday experiences to share:

I know there are lots of really good examples and I felt sure we could bring those examples to light and the kids would be convinced . . . It is an everyday thing, expansion (Teacher 5, 1995).

Her action was also influenced by her confidence that the class had the skills to reach a consensus and would recognise that she intended them to do so. Her comments here indicate her awareness of the joint nature of formative assessment. Her action relied on the students responding in a particular way:

I have confidence that I and they have developed certain skills and patterns. I think they recognise this technique of discussing around. I don't say "No" to someone. I say "Ummm" and I go onto the next person. That indicates to children "Well that person might have had an idea, but it was a bit deep, it was a bit hidden, or they weren't on the right track". But who knows. So I go onto the next person to see if they can give something. It may be critical, in that the technique may not be an option if you don't know your class. It is something you have got to develop (Teacher 5, 1995).

Her action also relied on her skills to help the students "agree on something". Even so, her confidence in her understanding and her communication skills wavered during the discussion when the class had seemed "absolutely adamant they were right". This prompted her to question her own understanding and communication skills:

"Have I got it wrong?" or "Have I got it right but what I'm saying is wrong?" at this time. So that it was right in my mind but what was coming out of my mouth was wrong (Teacher 5, 1995).

Thus, the classroom observation and the teacher development data indicated that the development of formative assessment practices is more than just an intellectual and professional activity; the feelings of teachers and students are centrally engaged, especially teachers' attitudes and confidence.

## **SOCIAL DEVELOPMENT AS A PART OF TEACHER DEVELOPMENT**

The third aspect of teacher development for formative assessment was social development, which is here described as that part of teacher development which involves the re-negotiation and re-construction of what it means to be a teacher of science. The teacher development for formative assessment was not an isolated change or development in the teachers' classrooms, as assessment in education is not divorced from society. Changing one's ideas and practice to do assessment for formative purposes has to be done in the context of other assessment concerns, constraints and expectations centred around assessment for auditing and for national qualifications. Whilst the New Zealand Ministry

of Education document on assessment policy (Ministry of Education, 1994) specifically mentions the need for teachers to do formative assessment, there has been comparatively little funding to date for teacher development for formative assessment, compared to the funding for teacher development on assessment for new national qualifications, the National Certificate in Educational Achievement, and assessment for accountability purposes. Many of the teachers in the research project had been on such government funded teacher development programmes.

In focusing on their doing of formative assessment, the teachers were required to reconstruct the way they thought about their classroom interactions and classroom assessment. Initially, this involved the articulation and clarification of the nature and purpose of formative assessment as discussed previously. A key aspect of this reconstruction was the articulation and valuing of the often tacit processes of eliciting student ideas through questioning, through informal interaction and by looking at student books - actions that were also identified as potentially formative by the students (Cowie, 2000). The teachers found this clarification both empowering and comforting because it highlighted their existing professional skills and also indicated that the challenges of undertaking formative assessment might not be insurmountable.

A further effect of this clarification was the teachers' collective recognition of the complexity of a teacher's role and responsibilities, and the multiple and often contradictory and conflicting purposes for classroom assessment. Through anecdoting, they came to appreciate that not only was formative assessment integral to teaching, but it was also irreconcilably a dilemma-driven activity (Lampert, 1985). The dilemmas, which the teachers shared, were to do with managing the tensions between acting to enhance individual student understanding of science, and sustaining student persistence and motivation. At the same time, other factors were important, such as fostering students' personal and social development and maintaining productive relationships between students and/or between the teacher and the student(s) and ensuring the class covered the curriculum, or a combination of all these factors. Teacher 9, for instance, spoke of the dilemmas arising from her responsibility for the progress of the class through the prescribed content and her responsibility for fostering individual understanding in each of the 30 students. She described asking herself the question "What is enough?" in relation to what percentage of the class should understand an idea before she moved on to the next one (Teacher 9, 1995). Teacher 9 commented that to manage this dilemma, she often revisited ideas. For example, she noticed some students were confused about managing variables within a "control" practical activity and so she revisited this idea at the beginning of the next lesson. After this lesson she said:

I came thinking I must address where they are at and not leave it . . .  
It is easy to keep moving on and say "We'll come back to that one later". I thought "No", I'd better try and work out this here . . .  
(Teacher 9, 1996).

As discussed already, the teacher development for formative assessment involved more than using a new activity in the classroom. It required teachers to develop their ideas and classroom practice in relation to learning, teaching, curriculum and assessment. It involved teachers interweaving doing formative assessment with how their views of learning are acted out in the classroom. For example, it was evident from the teacher development day discussions and the case study analysis of the classroom observations, that the teachers had two purposes for formative assessment. These were similar to those defined by Torrance and Pryor (1995) (convergent and divergent formative assessment) and depended on whether the teacher was checking to see if the intended learning had occurred or seeking to find out what learning had occurred and what students might learn next (Bell & Cowie, 1997, pp. 263-265). These two purposes were broadly associated with the use of planned tasks such as quick quizzes and teachers planning to interact with students while they were engaged in learning activities. These two formative purposes were associated with a view of formative assessment to inform future teaching actions and to provide feedback to students on how to achieve the teacher's desired learning outcomes, and a view of formative assessment to inform the teacher and the learner of his or her current and future learning. This latter form of action can be defined as "feedforward". It tended to involve longer term actions such as when teacher 5 waited for the knowledge and interest in a class to grow before she inputted ideas about solid composition (Bell & Cowie, 1997, p. 103).

In summary, the social development as a part of teacher development for formative assessment involved the teachers reconstructing and renegotiating what it means to be a teacher of science.

## DISCUSSION

Over the period of the research the teacher development that occurred involved the teachers' professional, personal and social development. Professional development focused on clarifying what it was that served as formative assessment in the classroom. For the teachers as a group the development of a shared language, a model of what served as formative assessment, and the linking of their own experiences were critical. Personal development focused on appreciating the risks and uncertainties involved in responding in the moment to the meanings students were making and an appreciation of the importance of confidence in determining their actions. Social development involved an examination of the role of the teacher in relation to teaching and learning. These aspects were interwoven but the teachers' recommendations for activities that would raise other teachers' awareness of the nature of formative assessment suggested that each aspect is important.

In the penultimate teacher development day, the teachers recommended that useful activities for professional development in formative assessment would include:

- planned formative assessment activities (Cowie & Bell, 1999) for the teachers to try in their classrooms and discuss as a group

- observers (a facilitator or another teacher) in the teachers' classroom with whom they could discuss their actions and formative interactions
- discussion of video clips to illustrate the process of generating, interpreting and responding to information on student learning
- discussing transcripts or other data from classroom research
- discussions on the importance of formative assessment through and during interaction (Cowie & Bell, 1999)
- discussion of student perceptions and experiences of formative assessment
- reflection on the teachers' own and other teachers' practice (Bell & Cowie, 1997, pp. 269-270).

Alongside these activities, the teachers emphasised the crucial role of their own knowledge of the subject they were teaching and of the pedagogical knowledge and skills required for formative assessment. Their recommendations indicated that they perceived the need to construct and reconstruct their knowledge and understandings through discussion. Areas identified for discussion included concerns about assessment in general; the nature and purpose of formative assessment; the development of their professional knowledge; making the tacit explicit; and developing a language to talk about formative assessment. And, as already documented, the teachers found it helpful to have guest speakers to clarify and address their concerns about assessment policy in general. The teachers highlighted the need for them to connect their own experience and practices to the notion of formative assessment and to further develop their own skill in formatively assessing students. They suggested that planned formative assessment be first addressed in the workshops through the sharing and trialling of classroom ideas for formative assessment and the sharing of concerns and problems with doing formative assessment in the classroom. It was recommended that formative assessment through interaction be discussed second and that this aspect of their practice be clarified by receiving feedback on their classroom practices from an observer.

The teachers emphasised that their sustained and responsive use of formative assessment required more than learning about a range of new and different assessment tasks or strategies. It also required a change in how they viewed and used their interactions with students.

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