

Professional Learning in Assessment

**Report to the Ministry of Education
for the National Assessment Strategy Review**

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Abstract

This paper sets out to answer a series of questions in relation to teachers' professional learning with a particular focus on assessment. Professional learning that is effective has the collection, analysis and use of assessment information as one of its central elements. Examined are: the Literacy Professional Development Project (in which assessment is 'backgrounded'); the Assess to Learn PL programme (in which assessment is 'foregrounded'); the PL within the National Education Monitoring Project; and other assessment PL opportunities in New Zealand. Suggestions for future PL on assessment centre around ensuring that New Zealand has sufficient technical, academic and professional assessment expertise; continuing to deliver assessment-focused school-based PL; ensuring that alternative (non-school-based) PL opportunities incorporate key elements of effective PL models; and recommending that advanced (tertiary) studies for assessment specialists be available.

Introduction

There is no doubt that teachers are fundamentally important in improving students' learning and achievement. As Lorna Earl states in her foreword to the Teacher Professional Learning and Development Best Evidence Synthesis Iteration (BES) (Timperley, Wilson, Barrar, & Fung, 2007), 'Many factors influence student learning, but it is increasingly clear that what teachers know and are able to do is one of the most important of all ... [therefore] ... professional learning represents an enormous investment in the development of human capital, directed at ensuring that the teaching and learning in our schools is up to date and effective' (p. vii).' She goes on to state that 'the kind of professional learning that makes a difference for students is hard work and demands strong policy support and professional determination' (p. ix).

There is equally no doubt that effective teaching and learning are fundamentally informed by good assessment information. Indeed, it is often stated in the converse. Effective classroom assessment is actually good teaching. The integral nature of the relationship between teaching, learning and assessment cannot be understated.

This paper sets out to answer a series of questions in relation to teachers' professional learning. The particular focus of the questions is assessment.

1. What is effective assessment?
2. What is professional learning (PL) and what makes it effective?
3. What are the connections between effective PL and effective assessment?
4. What can we learn from PL opportunities offered in New Zealand:
 - The Literacy Professional Development Project;
 - The Assess to Learn Professional Development Programme;
 - The 'NEMP experience'; and
 - Other assessment PL opportunities?
5. What suggestions might be made for building on current PL assessment practices?

The paper draws on the following:

- The best evidence synthesis iterations (BES) commissioned by the Ministry of Education;
- The Education Review Office reviews of assessment practices in early childhood (EC) settings, and primary and secondary schools;

- The national evaluation and regional milestone reports of the Assessment to Learn (AToL) professional development programmes currently offered in New Zealand;
- Reports and evaluations of the professional development project in literacy (LPDP), which is underpinned by a substantive evidence (i.e., assessment) base; and
- Reports of opportunities for teachers to experience professional learning related to national assessment resources, formative assessment and other assessment-related initiatives.

Terminology

The numerous definitions given to teachers' professional learning reflect the approaches taken to its delivery and the level of active professional involvement of teachers in the learning or its development. The definitions encompass such terms as 'in-service teacher education', 'teacher professional development', and 'teacher learning' (see, for example, Mitchell & Cubey, 2002; Timperley et al., 2007). At one point, I submitted a paper entitled, 'PD: Professional Development or Periodic Detention?' Rather clever on my part, I thought, because the latter seemed to represent the relative experience and benefits to be gained from some forms of professional learning experiences provided at that time. (The editors of the journal accepted the paper, but not the title because they considered it misleading.)

For the purposes of this paper, I use the term 'professional learning' (PL) to refer to those informal and formal professional activities that teachers engage in, in order to improve their practice and from there enhance their students' learning. The term suggests a more 'active' intentional role on the part of teachers in changing their practice, rather than their being a passive recipient of professional knowledge, which may or may not have an impact on their practice.

What is effective assessment?

There are many purposes for good assessment information in the New Zealand educational system for monitoring and reporting on the educational progress of students. Need for assessment information extends outwards from the central arena of the classroom and interactions between teachers and students, through reviewing, monitoring and reporting on the educational achievement and progress of students across schools, through monitoring the educational progress of students nationally and, finally, to understanding how the achievement and attitudes of students within New Zealand's educational system compare internationally.

Assessment within each of these arenas may take on a variety of forms and serve primary as well as secondary purposes. While effective assessment (and teaching) within the classroom has the most direct (and central) importance for individual students' learning and their educational provision, information about what students know and can do within each of the other arenas is also of central importance in informing the effectiveness of current educational provision at successively higher levels. Assessment is a day-to-day activity in which teachers and students interact/engage to best understand students' learning and achievement. It may be informal, even anecdotal at times. It may rely on learning stories, narratives, checklists of achievement objectives, teacher-made assessment tasks, pre-tests/post-tests, standardised tests, national assessment tools, and examinations. It may be used to inform decisions about the next appropriate learning steps for students (formative) (Hill, 1998). It may be used for preparing written reports of students' progress and for talking about that progress with parents. It may be used for senior secondary students'

educational qualifications (NCEA). In all these instances, it is the *use* of valid and reliable assessment information for reporting and making educational decisions that is central to its effectiveness. In essence, '[w]here good use is made of assessment, teachers monitor their own teaching and are informed about how well students are learning' (Education Review Office/ERO, 2007a, p. 3).

Teaching and learning in EC education adopts a socio-cultural approach, in which good assessment practice 'recognises the child as a competent and confident learner, takes into account the whole child, and involves parents, whānau and educators' (ERO, 2007c, p. 4). Such practice also reflects and values children's work. Narrative assessment strategies such as 'learning stories' describe children's learning processes and indicate possibilities for ongoing learning. 'This holistic approach to assessment informs the service's programme, educators' teaching practices, and supports positive learning outcomes for children' (ERO, 2007c, p. 38). EC assessment exemplars, Kei Tua o te Pae, have been developed to provide 'examples of assessment so that children, parents, whānau, and educators can each help to foster children's learning and development in their own ways' (Ministry of Education, 2004, pp. 2–3).

In 2006, ERO reviewed the assessment practices within EC settings and within primary and secondary schools. Across all sectors, the office found that the quality of assessment (the collection and use of assessment information) varied considerably. Assessment practices in about two thirds of EC settings reflected the four principles of Te Whāriki (Ministry of Education, 1996). Moreover, with the exception of the assessment of literacy and numeracy, only just over half of New Zealand primary schools and fewer secondary schools demonstrated effective assessment practices. Generally, assessment information gathered in secondary schools did not give an accurate picture of students' progress over time (ERO, 2007a, 2007b, 2007c).

A number of features of effective assessment were identified for EC settings and schools. For EC settings, these included:

- The service's philosophy being reflected in the assessment practice;
- A shared understanding of the purposes and intent of assessment;
- Assessment practice based on sound research;
- Assessment practice incorporated input from appropriate people; and
- Effective strategies in the service-supported assessment practice. (ERO, 2007c, p. 4)

For primary and secondary schools, the features of effective assessment were as follows:

- Collecting good quality information that fairly represented what students knew and could do;
- Analysing information in order to accurately determine the achievements of students;
- Correctly interpreting information when reporting the achievements and progress of individuals and groups of students and when identifying students' next learning steps;
- Using information to evaluate and modify teaching programmes; and
- Using information to report to inform governance and management decision-making. (2007a, p. 29)

An overview of ERO indicators of effective ('good') assessment practice falling under each of these features is presented in Appendix 1.

What is professional learning and what makes it effective?

In its broadest sense, PL has been characterised as ‘the total set of formal and informal learning experiences that teachers accumulate throughout their career until they leave the profession’ (Clement & Staessens, 1993). The benefits of PL identified in the literature are multi-faceted. Some are direct and specific; others are less obviously so. They range from personal to professional benefits, with spin-offs for participants, their classes, and sometimes their school or colleagues. Among benefits identified by the Organisation for Economic Co-operation and Development (OECD, 1988, p. 31) are the following:

- Opportunity to discuss and share ideas with colleagues;
- Improved teaching practices, especially in terms of providing more varied activities for children;
- An increased awareness of how children learn best and how to cater for this;
- An increased awareness of available resources;
- Development of a variety of skills and methods for teaching, improved interpersonal skills, and what the OECD referred to as
- A broadening of perspectives.

Broader benefits include:

- An increase in teachers’ confidence and ‘a positive effect on teachers’ levels of energy, which in turn affects their feelings of warmth towards students ... [and] leads to a decline in ... perceptions of the work placed upon them’ (Hill, Holmes-Smith, & Rowe, cited in Campbell, 1997, p. 28);
- An ‘effective antidote to the job dissatisfaction, stress and burnout that some teachers seem to experience’ (Chapman & Lowther, cited in Clement & Staessens, 1993);
- Teachers feeling more in control of their job and work situations, which in turn improves their ability to adapt themselves to new demands and changing circumstances, and to become ‘more capable of accounting for their professional acts in an unemotional and rational way’ (Clement & Staessens, 1993, p. 136); and
- Gains in self-esteem and self-efficacy, as well as opportunities for teachers to reflect, plan, organise, experiment, and practise new skills (Bergeron, Wermuth, & Hammar, 1997; Dewar & Bennie, 1996; Donn, 1995; Hollingsworth, 1996; OECD, 1998; Renyi, 1998; Stanley, 1995; Watters & Ginns, 1996; Zeegers, 1994).

What is noteworthy from the research just cited is that the focus of PL is on teachers’ experiences and learning.

The BESs conducted respectively by Mitchell and Cubey (2003) and Timperley et al. (2007) provide significant contemporary contributions to understanding what constitutes effective PL. In her foreword to the BES conducted by Timperley and colleagues, Earl describes their work as ‘[moving] the discourse about what we know about learning for teachers into a different plane, offering a rich and detailed theory supported by highly defensible evidence and logical arguments’ (Timperley et al., 2007, p. *vii*). However, the research included in the Timperley et al. BES is restricted to those studies in which sufficiently rigorous student outcome data allowed calculation of specific ‘effect sizes’ (i.e., the impact values of the PL). This particular criterion necessarily omits many studies of PL that do not seek to examine the link between PL and student learning in such quantifiable terms. It also excludes many studies that do not employ evaluative designs to examine the effectiveness of PL from a range of perspectives and through a range of measures (but not necessarily student outcomes).

While Timperley and colleagues offer an important rider to the findings of their BES by acknowledging that many professional learning opportunities for teachers happen informally or in meetings after school and outside of school, many PL opportunities also occur formally within schools. However, studies of the impact of these experiences have not been designed to collect the type of data that allows a direct estimate of the impact of the PL on student learning. They have generally been at the levels of participants' reactions (Level 1), participants' learning (Level 2), organisational support and change (Level 3), and participants' use of new knowledge and skills (Level 4). Only rarely are they at the level of student learning outcomes (Level 5) (Guskey, cited in Poskitt & Taylor, 2007).

From the research selected for the BES, Timperley and colleagues distilled a number of key elements associated with PL that impact positively and substantively on a range of student outcomes. These fell into four groups, namely the context, content, activities, and learning processes of the PL (see Overviews 1 to 4 in Appendix 2 for a list and brief description of these).

In summary, Timperley et al. concluded that successful PL involves:

- Teachers engaging with new knowledge that involves theoretical understandings relating to pedagogical content and assessment knowledge, and the implications of these understandings for their practice;
- Extended opportunities to learn through a variety of activities; and
- Support from 'experts'/providers with integrating new learning into alternative forms of practice, with these subject to negotiation between the provider and colleagues.

They furthermore concluded that in order for PL to have a significant positive impact on student outcomes, five elements are *necessary* (but not sufficient). Further elements (to bring the complement to *sufficient* status) are those that engage teachers in PL and ensure that PL is sustained. The necessary elements include:

- Consistency with wider policy trends and research;
- An extended time for teachers to engage with new ideas and to gain understanding of the implications of these for practice;
- Experts external to the group who can present the ideas in ways that promote teacher engagement;
- Opportunities for teachers to engage in a range of learning activities; and
- Opportunities for teachers to participate in a professional community that supports new ideas and practice while simultaneously challenging existing ones and focusing on teaching–learning links.

For Timperley et al., the other elements necessary for ensuring that new teacher learning leads to improved student achievement (improvements that can be sustained) include:

- A rationale or catalyst to participate, particularly in terms of teachers accepting that their practice may not be optimising their students' learning;
- A sufficiently in-depth pedagogical knowledge to be able to make 'principled decisions about practice' when PL external support is withdrawn;
- Evidence-based skills of inquiry so that teachers can identify next teaching steps and test if changes to practice are having the desired impact on students; and
- Organisational support of the teachers' schools in terms of the evidence base, a collective set of goals, and circumstances that continue to motivate improvement.

Finally, Timperley and colleagues observed that with ‘complex’ PL—that is, where changes to teaching practice are required—the PL needs to occur over an extended period of time (from six months to two years) if it is to be successful. However, if the curriculum goals are relatively narrow, successful PL can be achieved over a shorter period of time.

There is a resounding congruence between these findings and those of Mitchell and Cubey (2003), who identified the characteristics of effective PL in EC settings. While the language they use differs from that used by Timperley and colleagues, the components are almost parallel. For example, Mitchell and Cubey identify a similar set of ‘structural features’ of effective PL for EC educators. These features are those that accomplish the following:

- Incorporate EC educators’ own aspirations, skills, knowledge and understandings;
- Provide theoretical and content knowledge, and information about alternative practices;
- Involve EC educators in investigating pedagogy within their own settings;
- Enable the educators to analyse data from their own settings;
- Enable EC educators to reflect critically (investigate and challenge assumptions and extend their thinking);
- Support practices that are inclusive;
- Help EC educators change their educational practice, beliefs, understandings and/or attitudes; and
- Help EC educators gain awareness of their own thinking, actions and influence.

The findings from the two BESs thus define effective PL as the set of experiences that allow for deep teacher learning that leads to changed teaching practices, which in turn have a substantive and positive effect on student learning outcomes. Such learning is sustained within environments that support this approach and within a profession that considers itself a learning one.

Evaluation Associates Limited (2008), a provider of the AToL programme, takes our understanding of effective teacher learning one step further by identifying four stages of development, against which teachers’ progress and learning can be ‘assessed’. The draft set of Teacher Capabilities sets out a progression of teacher learning within six domains of learning: building focussed relationships, clarity about what is to be learnt, assessment literacy, promoting further learning, active reflection, and shared clarity about next learning.

What is the connection between effective PL and effective assessment?

The theory of effective PL that has emerged from BES work rests on research conducted predominantly within the curriculum areas of mathematics, science and literacy. The studies are inquiry-based, which means they (i) use evidence/measures of student outcomes—primarily achievement, but also attitudes and engagement—as the basis for identifying students’ weaknesses (and strengths), (ii) isolate the areas teachers need to focus on or change their teaching practice, and (iii) monitor any consequent changes in student outcomes. ‘Assessment’, then, is also an integral part of effective PL.

By ‘assessment’, I mean a process that involves identifying the appropriate student attributes/outcomes to be assessed, designing/selecting an appropriate/valid and reliable measure of that attribute/outcome, collecting and analysing the assessment information, and using that information to identify the next teaching actions to take. These steps form a

‘teacher inquiry and knowledge building cycle to promote student learning’ (Timperley et al., 2007, Fig. 5.1, p. *xiii*)—a cycle in which teachers evaluate the effectiveness or impact of their teaching actions.

Timperley et al. (2007) further conclude that effective PL requires teachers to engage with new knowledge that involves theoretical understandings in pedagogical content *and assessment knowledge*, and the implications of these for practice. They also maintain that teachers require support from ‘experts’ to integrate new learning into alternative forms of practice in pedagogy that includes *assessment* (my emphases). In short, effective PL within any curriculum area demands effective (rigorous) assessment.

However, an interesting question arises here. Is PL in assessment already an integral part of effective PL or is there a role for PL in assessment per se? An answer to this question requires determination of what is foregrounded in PL and what is backgrounded. In order to explore this matter further, I examine, in the next section, two national school-based PL programmes, one in which assessment is in the background (here, the PL programme relates to literacy within which assessment provides evidence of students’ achievement to inform decisions about literacy teaching practice) and one in which assessment is in the foreground (although, necessarily conducted within a curriculum context). I also explore an assessment PL experience as a component of the National Education Monitoring Project (one element of the current national assessment strategy) as well as several other PL experiences centred on national assessment tools (EC and school national exemplars), the national assessment resource seminars, and experience of secondary teachers in setting and moderating assessment tasks and students’ work for NCEA.

A key matter that needs to be addressed before embarking on these considerations, however, is that of gaining an understanding of what assessment knowledge and skills teachers currently bring to their work. Teachers’ assessment PL needs must be couched within the context of teachers’ current assessment knowledge, skills, practice and processes, and also within the context of what we know about best educational practices, and Ministry of Education policy emphases.

Assessment in pre-service teacher education (ITE) and for first-time teachers

While this is the topic of another review paper, it is relevant to note here that the assessment knowledge, skills and practices that newly graduated teachers bring into the profession are somewhat limited in terms of the current ITE programmes. This situation has been exacerbated not only by the length of the ITE programmes themselves (three years), but also by the design of ITE programmes and a lack of clarity over where to best place study of assessment. Speaking at the International Formative Assessment conference in Portland, 2005, Dr Mary Hill of Auckland University argued (and was supported in her claims by the conference participants) that initial teacher education programmes need to include assessment-specific study as well as assessment-embedded-within-curriculum study. Her view aligns with PL programmes in which assessment is foregrounded (AToL) and assessment is backgrounded (e.g., the Literacy Professional Development Programme/LPDP).

But even if we make provision for sufficient study of assessment in ITE, the assessment practices of newly recruited teachers are strongly influenced by the prevailing school

environment. New teachers are ‘socialised’ into existing assessment practices and procedures in schools (Lovett & Sinclair, 2005). Therefore, their influence and independence to practise in ways they may have learned through their ITE are strongly moderated by the school environment they enter.

The changing and multiple roles of assessment

A number of events have had profound effects on the roles and profile of assessment within the lives of students, teachers, schools and the Ministry of Education. I shall attempt a brief excursion over the major events that have had an impact on assessment in particular and changes to policies and practices in general, and which therefore have implications for PL assessment needs.

The introduction of self-governing schools signalled a new era of accountability for the quality of schools’ educational provisions for their students. More than ever before, schools were required to provide evidence that they were improving students’ educational outcomes. The evidence of student achievement required by ERO, which conducts external accountability reviews, has had a very strong influence on the nature and amount of assessment conducted within schools.

The almost simultaneous introduction of the new national curriculum documents specifying eight levels of multiple achievement objectives (AOs) in eight equally important curriculum areas generated a level of ‘assessment distress’ in schools previously not encountered. Teachers (and students) experienced severe assessment overload, and teachers adopted superficial methods of assessment (ticking off checklists of AOs) to provide evidence that the required range of achievement objectives had indeed been covered (taught and assessed) (Hill, 1997). While the Ministry’s national administration and education guidelines (NAGs and NEGAs) have more recently prioritised literacy and numeracy over other curriculum areas, there continues to be ‘curriculum squeeze’ and a need to provide evidence (assessment) of students’ achievement *across* the curriculum. Schools must fulfil self-review and meet planning and reporting requirements. These provisos have implications for collecting evidence of student learning and achievement in order to provide a school-wide profile. What has also changed, as we will see in the next sections, is the focus on effecting ‘deep’ teacher learning and changes in practices in the areas of teaching literacy and numeracy, and in formative assessment through PL programmes.

In the secondary school, the changes are no less. Assessment plays not only formative and summative (reporting to parents) roles, but also a substantive role in senior students’ qualifications and certification on the NCEA. Furthermore, the way in which assessment for qualifications is conducted has changed dramatically—from being strongly normative, it has moved to standards-based (initially through achievement based assessment), to unit standards, and to achievement standards. These changes have required an enormous philosophical shift in how assessment is conceived and practised within schools. They have also meant facing the challenges of designing acceptably valid and reliable assessment tasks, and interpreting ‘standards’ in consistent ways through consensus moderation.

What can we learn from PL opportunities offered in New Zealand?

The Literacy Professional Development Project

The Literacy Professional Development Project (LPDP) aimed to improve student achievement through an evidence-based inquiry model that uses deliberate acts of teaching and facilitation in order to develop or enhance strong professional learning communities focused on quality teaching and informed by professional reading and ‘nested’ research. The professional learning communities included three tiers: a national team of regional leaders, project directors, and project researchers; the external facilitators who coach school staff; and school staff.

Schools involved in the LPDP focused on either reading comprehension or writing. The goals for the project were:

- Improved student learning and achievement;
- Improved teacher content knowledge;
- Transfer of understanding of literacy pedagogy to practice;
- Effectively led professional learning communities; and
- Effective facilitator practice (added in 2006).

From 2004–2007, the LPDP provided whole-staff, onsite literacy professional development, running over two years, for almost 300 schools containing new entrant to Year 8 students. It also conducted its own ongoing inquiry into the project’s effectiveness, using data collected and discussed within the LPDP team, and closer research with a smaller set of schools. These efforts resulted in improvements to the focus and quality of the project’s work. The changes were thus based on the project’s theoretical frameworks, derived from research evidence, about what is needed in professional learning to change practice and understanding.

An independent evaluation (McDowall, Cameron, Dingle, Gilmore, & MacGibbon, 2007) investigated the impact of the features and processes of the LPDP on student learning and achievement, on teacher and facilitator learning, on the establishment of professional learning communities, and on the sustainability of any resultant changes. The major findings were that:

- The LPDP was generally effective in lifting student achievement, although not all students made positive shifts, and some students made significantly greater shifts than others. Some of the greatest gains were made by the lowest performing students (the target children), although over one third of students in reading schools who began in Stanine 1 remained in Stanine 1. Effect sizes were of the order of 0.20 to 0.30 for schools with a reading focus, and 1.17 for schools with a writing focus.
- Significant school effects accounted for 30% of the variance in student achievement in the reading schools and 23% of the variance in student achievement in writing schools.
- There was a significant facilitator effect in reading schools. This accounted for five per cent of the variance in student achievement. However, there was no facilitator effect in writing schools.
- Professional practices associated with ‘high-shift’ schools included principals with ‘a lot of’ commitment to the LPDP; literacy leaders or principals who challenged teachers to teach well, helped all staff learn together, led collaborative analysis of data, and had regular classroom observations for specified purposes; and teachers who discussed

teaching strategies in response to student data with the literacy leader at least twice a year.

- Teacher pedagogical content knowledge in high-shift schools was associated with a strong ability to interpret student data in relation to national norms, a strong use of asTTle and STAR, and a very good understanding of theoretical principles about effective literacy practices.
- Teacher learning was closely related to facilitator learning, that is, areas of shift in teacher learning paralleled areas of shift in facilitator learning.

It was clear (and perhaps not surprising) from consideration of the tiers of the LPDP model that coherence of learning decreased through the tiers, with the greatest coherence being between the national level and the regional facilitators (Levels 1 and 2), and the least between the national level and teachers (Levels 1 and 3). This pattern was demonstrated in part by the diminishing levels of awareness of the LPDP goals by facilitators (F), literacy leaders (LL), and teachers (T) to improve student achievement (97% F, 63% LL, 55% T); to improve teacher knowledge (83% F, 33% LL, 19% T); to transfer learning to practice (94% F, 82% LL, 69% T); and to build professional learning communities (93% F, 28% LL, 4% T). The diminishing returns or ‘Chinese whispers’ has implications for the intended levels of learning within each tier, the actual levels of learning within each tier, and the intersection or coherence across these tiers.

The Assess to Learn professional learning programme

The Assess to Learn (AToL) programme has been provided nationally since the 1990s (formerly under the title of Assessment for Better learning, ABeL), and from 2008 under the title of Assessment for Learning (AToL). Regional providers formed part of the national network established to provide the programme, even though it was recognised that these providers can differ in the specifics of their PL delivery.

The objectives of the recently completed contracts (these ran from 2005 to 2007) were to:

- Improve student learning and achievement;
- Improve teachers’ assessment knowledge and practice;
- Develop coherence between assessment processes, practices and systems in classrooms and schools so that they promote better learning;
- Develop a culture of continuous school improvement; and
- Contribute to building a regional and national assessment learning community.

The programme was available to primary and secondary schools in all regions for up to two years, and it included in-depth school development and seminars on asTTle V4 and the use of exemplars. It aligned with curriculum and other Ministry of Education initiatives (such as, school planning and reporting), collected student achievement data to show the impact of the programme on student learning and achievement, and was subject annually to a national independent evaluation. The model of PL that the programme employed focused on several aspects. These included:

- Engaging teachers with the theory and practice of assessment for learning by familiarising them with approaches that included in-class modelling and feedback;
- Training and support for teachers in current and new assessment tools;
- Developing coherence between assessment processes, practices and systems in classrooms in order to promote better learning;

- Developing/enhancing a strong professional learning community, regionally and nationally, that had a clear focus on quality teaching informed by achievement data and that would lead from there to improved student achievement.

It can be seen that AToL incorporates many of the context, content, activities and learning processes of effective PL identified by Timperley et al. (2007). The test of its actual effectiveness, however, is in demonstrated changes to teachers' actions and consequent shifts in student achievement.

In 2007, Poskitt and Taylor reported on the national evaluation of the AToL programme. They measured the impact of the programme on student achievement by determining the difference between expected shifts in student achievement and actual shifts on measures that had national normative data, such as, asTTle reading and writing, STAR, and the English exemplars. The researchers reported the following findings.

- The project produced mixed effects on student achievement. Shifts in achievement were greater than expected at some year levels. At other year levels, the shifts in achievement were more limited than expected, and sometimes negative.
- Teacher learning (which included changes in teacher practice in accordance with using assessment formatively) and shifts in student achievement improved in the second year of the teachers' involvement in AToL. Poskitt and Taylor accordingly suggested that some schools could need a third year of PL.
- Assessment issues requiring further PL included administering national assessment tools consistently, moderating writing assessment, and collecting valid and reliable data.
- The key approaches in terms of successful PL (and those that required further development in subsequent PL) were the process used to gather, analyse and interpret achievement information needed to inform teachers' decisions about their programme; conducting classroom observations and feedback (developing clearer understandings of learning intentions); and engaging teachers in discussions about student achievement.
- Further PL needs an explicit focus on supporting students' learning and helping them to reflect on their own work. Specifically mentioned were engaging students with learning intentions, identifying their next steps in learning, making the connection between what they were doing, what they were learning, and the purpose of learning (both short term and longer term), and developing self regulation, success criteria, and self-assessment through use of assessment models/examples and assessment criteria. Poskitt and Taylor also observed that providers need to identify risk factors early in the PL.

Several issues also emerged from the evaluation. The first concerned limitations in the data available for analysis. These included missing data, no student ID data collected in order to permit class-level analysis rather than student-level analysis, and achievement data of variable quality. These limitations have constrained a full evaluation of the impact of PL on student achievement at a national level. Secondly, there were clear variations between regions/providers in terms of effectiveness (the direction and level of shifts in student achievement), although the analyses presented in the evaluation did not reveal where these specific variations lay. The third issue concerned regional variations in the completeness of the classroom observational data collected by facilitators in order to determine shifts in teachers' and students' formative assessment practices. These 'slippages' not only prevent a comprehensive evaluation of the impact of the AToL programme, but also suggest that teachers and facilitators/providers need to have a better understanding of their need for a comprehensive and rigorous collection of data to inform their teaching and facilitation

actions. These are just some of the numerous ‘assessment-specific’ issues that continue to require further professional development.

Emergent issues from the LPDP and the AToL

Because of being national school-wide professional learning programmes, the LPDP and the AToL adopted many of the elements of effective PL identified by Timperley et al. (2007) and Mitchell and Cubey (2003). Their focus on improving student learning and achievement through evidence-based inquiry learning is a particularly important feature of both. However, several issues emerged from the two programmes that merit further discussion. These include the sustainability of PL, facilitator expertise, coherence across the tiers of the PL programmes, synergies and transfer of PL to other initiatives, and the number of national curriculum initiatives being introduced by the Ministry of Education.

Sustaining and scaling up professional learning

Only a relatively small number of schools can be involved in an intensive, school-wide extended PL programme over a two-year period at any given time. The reasons why relate to the Ministry of Education’s financial constraints in schools and within the Ministry of Education itself, and the availability of provider/facilitator capability. The model of PL seeks to provide sufficiently ‘deep’ teacher learning and the presence of strong professional environments that will support the ongoing PL and improvement after withdrawal of PL support. However, while some schools manage to sustain their improvement in student achievement beyond the PL, the general levels of sustainability are disappointing. This outcome is not unexpected for a couple of reasons.

First, the establishment of professionally supportive environments (schools) with a strong learning culture is still emerging in New Zealand and is not yet embedded. Such an environment depends on strong academic leadership from the principal as well as distributed professional leadership and expertise within schools, and opportunities for supportive and collegial professional discussions centred on students’ learning and achievement. It also depends on an inquiry-focused approach to teaching that includes accepting that student learning and achievement is the result of teaching practices, collecting achievement data to inform teaching practices, and of monitoring the impact of any changes to teaching practices.

Secondly, while many schools have been involved in a school-wide PL programme, there have been few instances of transfer of the PL from one context to another. For instance, learning gained from the LPDP has not necessarily been transferred to the Numeracy Project or to AToL (especially if it is in the context of mathematics). Nonetheless, as the principles and key elements of effective PL become increasingly incorporated as a common generic foundation for professional learning into the programmes offered across national initiatives, we can have greater confidence that there will be transference of the context, content, activities and learning processes of effective PL.

Coherence and expertise within the PL

Internal coherence within a national PL programme is also required to ensure optimal effectiveness across the tiers involved in the programme delivery. If the goal is for students to be self-regulating and reflective about their learning and progress, then the over-arching approach to PL has to be one that reaches individual teachers and then their students. Seeing each tier as critical to the whole of the PL programme and identifying and attending

explicitly to the PL capabilities required at each level are therefore of paramount importance for effective PL. Variations between facilitators were apparent in AToL, and even when measures to limit facilitator variation were built into the LPDP model part way through the delivery of the first three-year contract, teacher learning and student achievement continued to be affected by variations between facilitators.

The principles and key elements of effective PL apply at each tier in a PL programme. The particular goals set, pedagogical content knowledge and skills to be learned and applied, and the activities engaged in may differ in substance or extent from one tier to another. However, as a whole, the PL programme must be internally coherent, have a shared set of goals and understandings, and have well-delivered strategies for the PL to be effective and for the learning not to be diminished or distorted from the national (top tier) intention.

Whole-school professional learning

The models of PL discussed here involve a whole-school focus in a particular national curriculum/assessment initiative. As has been shown in this paper, these models can provide effective PL (i.e., improvements in students' learning and achievement). However, there are a number of variables that may act as barriers to the full potential of a PL programme being realised. These include poor academic leadership from the principal, reluctant teachers, inhibited learning environments (where teachers do not feel well supported), professional isolation of teachers in their classrooms, unreasonable expectations, excessive workloads, lack of confidence, inadequate resourcing, and lack of good organisational structures. Involvement in multiple PL programmes can also be a constraint. Forty per cent of the schools in AToL were also involved in at least one other PL initiative within their schools, most commonly in numeracy, literacy, ICT or health and PE. Six schools were involved in three or more initiatives! For these reasons, and for PL with fewer explicit and less complex PL objectives, alternative PL opportunities may also be effective.

The 'NEMP experience'

In this section, I detail one PL opportunity that centres on a national assessment tool. This is intended as a case study of a number of other opportunities specifically related to assessment that have been available for teachers. These include exemplars in EC settings and schools; cluster/group meetings to design and moderate secondary school students' assessment for NCEA; participation in the developmental work for asTTle; attendance at workshops on the Progressive Achievement Tests and Assessment Resource Banks; and attendance at conferences on assessment, such as the National Assessment Resources seminars (see a later section). The PL provided through the National Education Monitoring Project (NEMP) provides a PL opportunity in assessment (the 'NEMP experience') that contrasts with school-based PL programmes.

While NEMP seeks to provide information at a 'system level' on how children are performing nationally, the programme has an equally important educative or formative purpose, as evidenced by Flockton's (1999, p. 28) comment: '... [the] real benefits and greatest connections should be with learners, whether those learners are whole schools, groups of teachers or individual students.' Flockton has described the conceptual model underlying NEMP as one that 'faces the challenge of developing and following assessment methods that fit with a belief system about what is important about teaching and learning' (p. 25). He has also noted that NEMP supports the belief that 'extensive teacher participation strengthens ownership of successes and challenges, and that ownership is at the core of the

professional action necessary for advancing teaching and learning' (p. 27). At the outset of NEMP, Crooks and Flockton (1993, p. 4) anticipated that the

use of practising teachers will mean a very powerful staff development benefit for the teachers and their schools: substantial training and experience in high quality assessment procedures, and the insights and new perspectives gained from working intensively with 60 children and the staff in five or more different schools. We believe that this pool of teachers, growing annually, will be of great value to schools and their students.

The NEMP experience involves a number of distinctive 'design' features that seek to optimise the learning opportunities for teachers who administer the assessment tasks (these teachers are known as teacher administrators or TAs) and teachers who mark the assessment tasks (known as teacher markers or TMs). Approximately 100 TAs are engaged each year for a period of six weeks to receive training and then work intensively to administer the tasks to 60 children in at least five different schools. For the TAs, the NEMP experience includes:

- *An intensive training week*: During this week, teachers are briefed on their role as TAs, become familiar with the NEMP assessment tasks they are required to administer, and instructed in the use of video and other assessment and recording equipment. The primary aim of the training week is to ensure that TAs are trained to conduct the assessment of children with accuracy and in a standardised way.
- *NEMP partnerships*: Here, pairs of teachers work together within each school to assess 12 children over a five-week period. This approach provides each teacher with collegial support.
- *Ongoing support from the NEMP office*: This is available at all times to deal with queries, equipment failures or replacements, and/or missing resources.
- *Working closely with children, using a variety of assessment approaches*: The approaches include one-to-one interviews, team, 'hands on', and independent. The maximum number of children a teacher works with on any assessment activity is four.
- *Visits to different schools*: Each pair of teachers visits at least five schools. Although two or three small schools may collectively provide the number of children required for assessment, TAs still visit at least five schools.
- *Time out from the classroom*: TAs are engaged for a six-week period, during which they are released from their regular classroom teaching responsibilities.
- *Exposure to new ideas of assessment*: NEMP uses a large number of diverse assessment tasks that are presented in a variety of approaches. They are designed to provide models of good and innovative assessment that teachers may use or adapt for use within their own classes/schools.

For the TMs, the NEMP experience is somewhat more limited, and includes the following:

- *An intensive one or two weeks of training and marking as a team*: Teachers, with guidance from NEMP, are responsible for formulating the marking criteria for each assessment task, and for undertaking the marking, sometimes in pairs, for those assessment tasks requiring substantial professional judgement. Regular monitoring and discussion of the marking criteria are built into the marking timetable, a practice that permits review of consensus interpretations of the marking criteria.
- *Exposure to new ideas of assessment*: As is the case for TAs, TMs are exposed to a diverse range of assessment tasks presented through a variety of approaches. For example, student performances to be marked may have been video-taped or crafted (pieces of artwork or writing are examples of the latter).

Gilmore's (2002) evaluation of the NEMP experience found that the structural aspects of the NEMP experience and the PL benefits for teachers from it were numerous, broad and multi-faceted. Both TAs and TMs gained valuable insights into assessment processes and how children can perform on a range of assessment tasks in different contexts and from quite different perspectives. For TAs, the lessons were 'front on' in terms of conducting the assessments with children and considering issues of rapport, the impact of the assessment processes on children, and standardised administration procedures. For TMs, the lessons are 'back on' in terms of allowing them to witness the outcomes of the assessments and to consider issues related to marking criteria, marker consistency, and colleagues reaching consensus.

The most substantive benefits for teachers related to personal and professional factors, teaching and curriculum factors, and assessment factors. Among the personal benefits were increased self-confidence and self-esteem, emotional and stress relief, the re-energising that comes from a 'sabbatical', and a revived motivation for teaching. Among the professional benefits were confirmation of the quality of one's own teaching, feeling valued as a professional/an 'expert', collegial support from other teachers and the NEMP staff, interaction with other teachers, sharing of ideas with colleagues, opportunity to reflect on one's future, and a greater understanding of teaching and assessment practices.

Teachers also gained a number of 'lessons' from their experiences that had the potential for positive impacts on their classroom teaching and assessment practices. The *teaching and curriculum* benefits included slowing down the pace of teaching and learning, thereby giving children time to think and respond; becoming more 'open-minded' about teaching and aware of gaps in children's knowledge and skills; and gaining a greater appreciation of what resources/ideas are available for and can be used in the various curriculum areas. Benefits in relation to *assessment* included being more informed about assessment processes; gaining an awareness of the potential contributions of NEMP and of oneself to school-wide assessment policies and practices; and gaining a greater appreciation of the balance required between the quality and the quantity of assessment and between the assessment of process and the assessment of product. Teachers also gained a heightened awareness of the importance of establishing rapport with children; of using technology in assessment, especially video equipment; and of improved interview and questioning techniques. They furthermore became more aware of the importance of instructions, the use of co-operative, group assessment, the use of open and 'manipulative'/'visual' forms of assessment, and specific training for the standardised administration of assessment tasks. Finally, they obtained a greater understanding of marker reliability and the role of marking criteria in judging children's performances.

The NEMP experience not only provided good models of assessment, but also offered PL experiences that had the potential to effect change in teachers' classroom practices (Black, 2000; Black & Wiliam, 1998). Gilmore's (1999) report of a series of case study teachers who had made significant changes to assessment practices within their school or class as a result of their NEMP experiences provides evidence that the foundations laid by the NEMP experience do, in fact, result in changes to teachers' classroom practices. As would be anticipated, the impact of the NEMP experiences in the classroom (the acid test of effective PD (Goldberg et al., 1999/2000) is as varied as teachers' individual gains from the NEMP experience itself.

The extent to which TAs and TMs can have an impact on the PL of their colleagues or influence assessment practices within their school is shaped by a number of factors, including teachers' role in the school hierarchy, the opportunities to provide feedback to and PL for their colleagues, the learning culture of the school, and the pressures teachers themselves confront as they return to teaching and experience lack of PL support materials (Gilmore, 1999). However, as Lovett (2002) has showed, teachers from different schools who work together within a 'quality learning circle' to study the NEMP reports of results, to experiment with, report back and discuss their experiences with NEMP assessment tasks, and to observe one another's practices are able to advance their understandings about assessment generally and about NEMP in particular. Lovett also showed that teachers gain confidence in using assessment techniques, in discussing assessment/teaching ideas and experiences and examples of students' work, and in making changes to their assessment practices. The increasingly widespread practice of professional learning networks (quality learning circles) within and across schools will serve to enhance this kind of assessment-focussed learning.

Other assessment PL experiences

In this section, I touch briefly on the range of PL opportunities provided through a number of other avenues. One such concerns the development of national exemplars for EC (Davis, 2006), for primary and secondary schools and, more recently, for learners with special education needs (using learning stories) (Rose Hague and Missy Morton, personal communications, June, 2008). Another is the national PL programme that accompanied the implementation of the EC and school national exemplars. A third is the introduction of standards/achievement-based assessment and moderation of students' work for NCEA. Of particular importance in these examples are opportunities for professional discussions with colleagues, working with students' actual work, and reaching common understandings about standards-based assessment.

The value of professional discussions around national assessment resources for teachers can be seen in the both the *development* and *use* of national exemplars for the EC and school curriculum documents. National exemplars have been developed to help teachers understand what type of student work 'exemplifies' the levels of AOs specified in the respective curriculum statements. The exemplars typically include authentic examples of the type of student learning and achievement at each level of the respective curricula that are the result of good teaching. Each is annotated in relation to identified key features of the curriculum so that it is clear what criteria (features) are important to focus on when assessing students' learning and achievement, and how to apply these. Also included are matrices of key indicators (the beginnings of progress indicators currently being developed in literacy), conversations between teachers and students to demonstrate appropriate feedback and the interactions that ensue from this assessed learning, and ideas of what teaching actions should be taken as 'next steps' (these are predominantly in the form of appropriate resources). The experience that teachers gain from working with exemplars in EC settings and schools also helps schools develop their own local exemplars. Equally importantly, the exemplars provide teachers with a resource for clarifying with students the intended—and expected—learning outcomes/standards of the work/models, and for collaboratively discussing students' progress.

Professional discussions based on student achievement data from other national assessment resources are developing as teaching practices within schools become increasingly inquiry focused, and changes to teaching actions are based on evidence of students' learning and

achievement. One important such resource is asTTle, but recognition also needs to be given to other standardised tests, such as the Supplementary Tests of Reading (STAR), Progressive Achievement Tests in Reading and Mathematics (PATs), the Assessment Resource Banks (ARBs) in English, mathematics and science, and measures of School Engagement. This development is strongly evident in both of the school-based PL programmes described above.

As well as experiencing positive learning outcomes when required to change their assessment practices from normative to standards/achievement-based, in order to comply with new assessment procedures for qualifications, secondary teachers experience considerable challenges. Moderation procedures where teachers must discuss and arrive at a consensus decision about grades to be awarded to students' work have contributed much to the assessment PL of secondary teachers.

The implementation of the EC assessment exemplars, Kei Tua o te Pae, was accompanied by a national PL programme. ERO's evaluation of assessment practices in EC settings (ERO, 2007c) highlighted the need for 'high quality [PL] and sufficient time to allow educators to fully understand the purpose of assessment processes and practices, and to use assessment information effectively in the planning and evaluation of programmes' (p. 1).

Of particular importance in these examples are opportunities for professional discussions with colleagues, working with students' actual work, and coming to common understandings about standards-based assessment.

The power of assessment to influence teaching and learning practices is well documented in the literature (see, for example, Black & Willam, 1998). Evidence is provided of the strong, positive impacts that assessment practices can have when used in formative ways and where the stakes are low (accountability-wise) for students, teachers and schools, and of the strongly negative impacts assessment can have when used for non-educative, accountability purposes where the stakes very high (as in the United States' No Child Left Behind policy). The requirements of NCEA assessment, which is educative, summative and also high stakes, place severe constraints on the way in which assessment is conducted within secondary schools. Of particular concern is the need to provide secondary teachers with PL in formative assessment practices that will enhance and inform their teaching and their students' learning.

Suggestions for future PL on assessment

In this section I pose four substantive questions that have emerged from my analysis of the literature and suggest a number of recommendations for future PL on assessment.

Does New Zealand have sufficient technical and professional assessment expertise?

I suspect not. The 'cadre' of technical and professional assessment expertise in New Zealand is neither sufficient nor well aligned. The current 'handful' of expertise is not enough to fulfil the needs in New Zealand for pedagogical and assessment PL, especially when we consider the extent of the assessment knowledge and expertise required in teachers' PL that 'foregrounds' assessment and in teachers' PL that 'backgrounds' assessment. Also, it is not only teachers who need assessment-related PL. Other education groups have ongoing needs for this type of PL, in terms of both technical aspects and in

practice. To build a sufficient professional ‘cadre’ of assessment expertise, I suggest consideration and implementation of the following:

1. *Bedding in a commitment to ongoing assessment PL and/or support within EC settings and schools that is nationally strategic and coherent:* Teacher PL is currently delivered on contract by private providers. The PL expertise that these providers offer is confined, to some extent, by the terms of each contract, which is finite in duration and gives no assurance that the PL programme delivery will be ongoing. ‘Continuous’ PL support for teachers will accommodate new developments in curriculum, pedagogy and assessment, and build assessment capability among the constant flow of new teachers into the profession, and as teachers transfer from one school/setting to another.
2. *Developing a national strategy focused on establishing initiative-wide sustainability of PL:* PL is people dependent and resource hungry. Therefore, careful consideration needs to be given to how to most effectively sustain the PL that is delivered. Attention must be given to improving the synergies of and coherence between national initiatives and PL programmes in order to strengthen the capability of schools and the system to maintain responsiveness to policy changes, research and professional experience. The inquiry-focused, evidence-based decision-making that is sought in schools to improve the educational provision for students must also be exercised at all levels of the system.
3. *Ensuring an alignment of the assessment expertise required in New Zealand across the different arenas needing/using assessment information.*
Developing technical, academic and professional expertise in assessment.

Should assessment PL be foregrounded in school-based PL programmes?

My answer is an emphatic yes. In the main, AToL provides excellent support for teachers who are using assessment formatively. However, a number of issues emerged from my reading of the national evaluation of AToL conducted by Poskitt and Taylor (2008) and of the final milestone reports from the seven AToL providers (Assess to Learn Providers, 2007). Consideration of these issues leads me to make the following suggestions.

1. *Ensure consistency in the quality of PL delivered:* The findings reveal variation amongst the seven providers in terms of their effectiveness. Although this variation may be due to variations in particular features of the PL delivered, it may also reflect the variation in expertise of the facilitators delivering the PL. As was discussed in relation to the LPDP, facilitators play a pivotal role in school-based PL programmes because they are the key ‘tier’ through which the key understandings, knowledge and skills in assessment, *as well as in facilitation*, are called into play. Attention must therefore be paid to addressing the PL needs of facilitators in order to be confident that the expertise required of facilitators is not only maintained but also strengthened and refreshed as new facilitators enter this role. I note that AToL has established a national network of providers, evaluators and Ministry of Education officers.
2. *Provide continued support for teachers in all areas of formative assessment issues delivered by AToL, particularly in the following areas:*
 - a. Development of the critical skills needed to design and/or select appropriate measures of achievement.
 - b. Heightened awareness and support of teachers’ use of a broader range of materials/resources. High reliance has been placed on the use of asTTle and, to a lesser extent, national exemplars to provide measures of student achievement predominantly in literacy and mathematics. AToL, where assessment is foregrounded, has only a

limited number of national assessment tools available. Teachers implementing AToL in other curriculum areas, such as, ICT, science, PE, health and so on, is not uncommon, and this practice can perhaps be expected to grow as teachers become accomplished and confident in the teaching, learning and assessment of literacy and numeracy. Teachers involved in the AToL programme should also be made familiar with the assessment-related PL potential of the ARBs, the PATs, and NEMP. The ARBs provide alternative assessments in English, mathematics and science; the PATs in reading and mathematics; and NEMP across the whole curriculum. The ARBs and NEMP also provide many excellent assessment tasks that would provide valid and reliable information about students' achievement. The challenge for teachers, and for the providers and facilitators of AToL, is to construct their own assessments from these resources. Rather than simply accepting intact instruments, facilitators and other appropriate people need to provide teachers with guidance on constructing and/or selecting assessment tasks that will best fit their assessment requirements. This approach needs much greater emphasis within PL.

- c. The interpretation and use of assessment information/evidence to inform teaching practice.
- d. Students' experiences of and role in assessment to further develop their participation and ownership of their own learning.
- e. The role of ICT in classroom assessment. Despite the ARBs, asTTle and NEMP utilising the computer and/or internet for assessment purposes, there has been little focus on the potential and use of these tools for classroom-based assessment. Explorations of computer-adaptive testing and other electronic mechanisms for assessment should be explored and incorporated into PL. Current professional development in e-asTTle needs to advance beyond the technical nature of dealing with technology to focus on the uses that can be made of information gathered this way.

What form should PL on assessment take?

No one form of PL fits all purposes. Although the studies considered in this paper identify the key elements of effective teacher PL, they do not suggest that all effective PL should be of one particular type, or school-based, or school-wide. As Timperley et al. (2007) state, many effective PL experiences occur within the school (and without external experts) and outside of school, and/or require shorter periods of time if the objectives of the PL are fewer. A range of PL opportunities needs to be available, and these opportunities may or may not use external expertise. However, all such opportunities can be made more effective by ensuring that they incorporate the key elements identified by Timperley et al., particularly those that encourage professional interactions focussed on students' work. The potential of these opportunities may be made more even more effective or 'scaled up' with the support of a professionally active 'learning' school environment that encourages/provides opportunities for teachers to share new learning with colleagues. I suggest that PL opportunities/programmes take into account the key features identified by Timperley et al. (2007) and Mitchell and Cubey (2003).

Should there be advanced studies in educational assessment?

The New Zealand Assessment Academy (NZAA)¹ has identified the need for advanced (postgraduate) studies in assessment as urgent in order to build assessment research,

¹ NZAA includes Professors Terry Crooks, John Hattie, Jeff Smith, Lisa Smith, Charles Darr and Associate Professor Alison Gilmore.

scholarship and practice in New Zealand. Such studies would seek to graduate ‘assessment specialists’ by providing them with a strong theoretical as well as an applied focus on assessment, informed by the international and national literature, and with an emphasis on developing the statistical/measurement base of assessment. Such advanced studies might be supported by the Ministry of Education in a manner similar to the one it uses in providing specialist postgraduate studies/qualifications in evaluation for officers of ERO and specialist programmes for Resource Teachers: Learning and Behaviour (RTLBs). These studies would provide a useful complement to the PL of the following groups: providers and facilitators of ATOL and other assessment PL programmes; assessment specialist teachers within schools; members of ERO and the Ministry of Education; and other groups that have a professional interest in and responsibility for assessment. Advanced studies in assessment should provide for and develop technical, academic and professional expertise in assessment.

Appendix 1: Indicators of good assessment practice

Indicators of good assessment practices in EC settings

- A shared understanding of the purposes and intent of assessment;
- Assessment practice based on sound research;
- Assessment practice that incorporates input from appropriate people; and
- Effective strategies in service-supported assessment practice.

(from ERO, 2007c)

Indicators of good assessment practices in schools

Effective primary and secondary schools...

- Make certain that teachers have shared understandings about the purpose of assessment;
- Make certain that school managers, teachers and students are aware of the rationale for the decisions being made about assessment;
- Give teachers opportunity for professional development in assessment;
- Expect teachers to be knowledgeable about their students’ achievements and interests;
- Build relationships with students’ families and whānau that are strong and so contribute to the children’s learning;
- Encourage teachers to use data effectively to make improvements to their teaching;
- Expect assessment information to be drawn from a wide range of sources, such as day-to-day interaction with students, from analysis of students’ work, and from more formally designed and administered assessment tasks;
- Make sure teachers are able to analyse both numeric and narrative assessment information and interpret the results so these are understood by all potential users of the information;
- Encourage teachers to use formative assessment strategies that ensure the purpose of activities are understood and that students receive effective and useful feedback;
- Identify groups of students who need extra assistance as well as what specific assistance is needed;
- Monitor students’ progress and gather comprehensive data on their achievements school-wide;
- Identify any trends and patterns in students’ achievements and compare the achievements of groups of students in the school; and
- Establish clear expectations for achievement, and for the methods of collating and reporting assessment data, so progress towards agreed achievement targets can be measured.

(from ERO, 2007a, p. 1)

Effective secondary schools also...

- Promote the philosophy that student learning—not credit acquisition—drives assessment practices;
- Establish clear lines of communication and easily accessed support between school and home; and
- Provide students and their parents with booklets and hold information evenings to explain National Qualification Framework requirements and assessment procedures, including appeals and opportunities for reassessment.

(from ERO, 2007b, p. 1)

Key aspects of good assessment practice within schools

(from ERO, 2007a, 2007b)

Schools...

Take a school-wide approach to assessment practice and information

- School-wide expectations for student learning and achievement are clear, well founded and used to inform teaching;
- There are close links between assessment processes and stated learning priorities;
- There is a clear rationale and appropriate school-wide systems; and
- The processes used are those that strengthen assessment consistency and judgements. (p. 5)

Can demonstrate students' achievement and progress

- Assessment information demonstrates individual students' achievements;
- Assessment information demonstrates the progress of individual students;
- Student achievements are referenced to national and local sources of achievement information; and
- Decisions on students' achievement are based on multiple information sources. (p. 8)

Develop an interactive relationship between assessment and teaching and learning

- Teachers analyse and interpret student achievement information;
- Teachers use that information to identify the learning needs of students;
- Teachers use the information to make decisions about learning experiences and programmes for individuals and for groups of students;
- Teachers advise and guide students to make effective choices about their learning based on assessment information. (p. 10)

Use school-wide information to improve student achievement

- Staff collate assessment data that gives *useful* information about how well students and groups of students are achieving and progressing;
- Information on students' achievement is used to gauge and monitor the effectiveness of teaching and of programmes;
- Information on students' achievement is used to identify and monitor groups of students who may be of interest or concern;
- Boards of trustees use information about students' achievement for making policy and for conducting strategic planning and resourcing. (p.16)

Make sure their communities receive reports of achievement information

- The school seeks and values parents' opinions and ideas when developing and reviewing assessment and reporting processes;
- The school consults its Māori community or whānau when developing plans to improve the achievement of Māori students and to set targets in this regard;
- Parents are informed of the school's assessment processes;
- Teachers share with parents good quality, relevant information about achievements and progress; and
- Parents receive good quality, relevant information that helps them support their child's next learning steps. (p. 20)

Appendix 2: Overview of effective PL relating to contexts, content, activities and learning processes

Overview 1: Effective contexts for promoting professional learning opportunities that impact on a range of student outcomes

Extended time for opportunities to learn is necessary but not sufficient

- Learning opportunities typically occur over an extended period of time and involve frequent contact with a provider. This is because the process of changing teaching practice involves substantive new learning that, at times, challenges the existing beliefs, values, and/or understandings that underpin that practice. However, extended opportunities can also have no or low impact on student outcomes. Limited time is adequate for relatively narrow curriculum goals. How time is used is more important than the exact nature of the provision (e.g., release from teaching duties). (Funding for release time and the absence of such funding were both associated with the interventions in general in the core studies, and particularly with those interventions that had low or no impact.)

External expertise is typically necessary but not sufficient

- Although engagement of external expertise was a feature of nearly all the interventions in the core studies, with funding frequently used for this purpose, interventions with low or no impact also involved external experts.

Teachers' engagement in learning at some point is more important than is initial volunteering

- In the core studies, consideration of who initiated the professional learning opportunities and whether these opportunities were voluntary or compulsory was not associated with particular outcomes for students. What was more important was that teachers engaged in the learning process at some point.

Prevailing discourses are challenged

- If prevailing discourses are problematic, then they are probably based on assumptions that some groups of students cannot learn as well as others and/or emphasise limited curriculum goals. The challenge to discourses typically involves iterative cycles of thinking about alternatives and becoming aware of learning gains made as a result of changed teaching approaches.

Opportunities to participate in a professional community of practice are more important than place

- Interventions in the core studies were both school-based and external to the school. Nearly all included participation in some kind of community of practice. However, such participation on its own was not associated with change in the core studies. As such, effective communities are those that not only provide teachers with opportunities to process new understandings and to challenge problematic beliefs but also focus on analysing the impact of teaching on student learning.

There is consistency with regard to wider trends in policy and research

- Approaches promoted in the core studies typically were consistent with current research findings, recommendations of professional bodies (e.g., national subject associations), and/or current policy.

School leadership is active

- School-based interventions in the core studies had leaders who provided one or more of the following conditions:
 - Actively organised a supportive environment to promote professional learning opportunities and the implementation of new practices in classrooms;
 - Focused on developing a learning culture within the school and were learners along with the teachers;
 - Provided alternative visions and targets for student outcomes and monitored whether these were met; and
 - Created the conditions for distributing leadership by developing the leadership of others.

Overview 2: The content of professional learning and development in the core studies

Integration of different aspects

- Integration of theory and practice was a key feature in the core studies. Theory provided the basis for making curricular and pedagogical decisions, and teachers were assisted to translate theory into classroom practice.
- Integration of pedagogical content knowledge, of assessment information, and of how students learn particular curricula was a feature of most curriculum-based interventions documented in the core studies, but was given different emphases in different curricula. A greater emphasis on curriculum content knowledge was evident in mathematics, science, and writing than in reading.

Establishment of clear links between teaching and learning and/or student–teacher relationships

- All interventions in the core studies were underpinned by an assumption that student learning and teacher–student relationships are strongly influenced by what teachers do in their classrooms. Thus, an analysis of the teacher–student relationship could, by identifying problems and providing new vision, give teachers the motivation to engage in professional learning opportunities.

Assessment used to focus teaching and to enhance self-regulation

- Approximately half of the interventions in the core studies included assessment for one or more of the following purposes:
 - Providing a catalyst for initial and ongoing engagement;
 - Identifying professional learning needs;
 - Identifying student learning needs through assessment of students’ understandings and skills in order to focus teaching; and
 - Inquiring into the effectiveness of practice with particular students for the purpose of confirming or refining practice.

Sustainability

- Sustainability depended on teachers acquiring both of the following: (i) an in-depth understanding of theory, which served as a tool to assist instructional decision-making; and (ii) the skills of inquiry needed to judge the impact of teaching on learning and to identify next teaching steps.

Overview 3: Activities in the core studies that were constructed to promote professional learning

Alignment between content and activities

- A clear alignment between the intended learning goals and the activities was evident. Individual activities often served multiple purposes.

Need for a variety of activities

- Teachers were provided with a variety of ways to understand the content. Apart from ‘listening to those with expertise’, no single type of activity was common to all interventions and no individual activity stood out as more effective than others across studies or within particular categories. ‘Listening to experts’ was not in itself sufficient to change practice.

Content conveyed through activities

- The *content* conveyed through an activity was the more important aspect of any particular activity than the type of activity. Every type of activity that was associated with positive outcomes was also associated with low or no impact.

Sequencing of professional instruction

- Typical sequences involved a rationale or catalyst to engage, instruction in key theoretical principles, and opportunities to translate theory into practice, thereby deepen understanding of theory.

Discussion and negotiation of understandings

- Professional development pedagogies shared a focus on providing opportunities for teachers to discuss and negotiate the meaning of concepts taught.
- Understanding of new theories was sometimes developed through engaging teachers’ existing theories. (Initial activities showed that there problems could arise in relation to teachers’ existing theories of practice.)

Maintenance of student perspective

- A variety of activities served to develop teachers’ understanding of the relationship between their teaching and student learning.

Overview 4: Learning processes and teachers’ responses

Substantive change is difficult

- In the cores studies, learning to change teaching practice in ways that impacted on student outcomes produced many challenges for teachers. Specific learning processes were usually implied rather than specified, as were teachers’ responses.

New understandings had mixed outcomes

- The interventions in all the core studies involved teachers developing new understandings and extending their skills by becoming aware of new information. Cueing existing knowledge was necessary for theory engagement but insufficient to change practice.
- Some new understandings were *consistent* with current positioning. In the core studies, these understandings became accommodated within teachers’ existing conceptual frameworks. This situation occurred when specific skills were acquired or when teachers were aware that their existing knowledge was limited. Acceptance (not necessarily deep understanding) was usually achieved.

- Some new understandings created *dissonance* with current positioning. Aspects of new information challenged teachers' current positioning with regard to students, curriculum content, and/or effective pedagogy. This situation typically occurred when teachers were more confident of their knowledge and practice base. Extreme reactions of rejection or engagement were likely.

Regulation of own and others' learning

In a few interventions, teachers learned to regulate their own and others' learning. If teachers are to acquire the skills and habit of ongoing inquiry into practice, it is important that they are systematically introduced to such inquiry in the professional learning context. The core studies demonstrated that this response is fundamental to sustainability.

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