



THE UNIVERSITY OF
WAIKATO
Te Whare Wānanga o Waikato

School of Education

Te Kura Toi Tangata

Waikato Journal of Education

Te Hautaka Mātauranga o Waikato

Volume 10 : 2004

10th Anniversary Issue: Commentary by Professor Clive McGee
Inaugural Addresses by Professors Bevan Grant & Doug Booth
Special Section on Bodies in Motion

WAIKATO JOURNAL OF EDUCATION

TE HAUTAKA MĀTAURANGA O WAIKATO

VOLUME 10, 2004

| | |
|--|----|
| Commentary: Ten Years of the Waikato Journal of Education CLIVE MCGEE | 3 |
| <hr/> | |
| Introduction to Special Section: Bodies in Motion: Sport, Health, Physical Activity and Physical Education CLIVE C. POPE AND TONI BRUCE | 7 |
| Commentary: Relecting and Asserting: Thoughts on a lengthy Career in Physical Education BOB STOTHART | 11 |
| Commentary: Physical Education as HPE: 'Rational' Reflections or Rueful Ruminations? RICHARD TINNING | 15 |
| Commentary: Evidence-based Practice in Health and Physical Education DOUNE MACDONALD | 21 |
| Commentary: School Physical Education: Reflections on Key Issues Shaping the Field ALAN OVENS | 27 |
| They're Not Doing Bad for their Age: Ageing, Leisure and Active Living BEVAN C. GRANT | 33 |
| Remnants of the Past, History and the Present DOUGLAS BOOTH | 51 |
| Challenges to State Physical Education: Tikanga Māori, Physical Education Curricula, Historical Deconstruction, Inclusivism and Decolonisation BRENDAN HOKOWHITU | 71 |
| The Indigenous Factor: The Role of Kapa Haka as a Culturally Responsive Learning Intervention PAROA WHITINUI | 85 |
| Whose Knowledge is of Most Worth? The Importance of Listening to the Voice of the Learner MARGARET J. SCRATCHLEY | 99 |

| | |
|---|-----|
| The Ecology of Cooperative Learning in a High School Physical Education Programme | |
| BEN DYSON AND KEVIN STRACHAN | 117 |
| A Crucible of Competition and Cooperation: Where do the Concepts Fit in Recreation Activity Delivery? | |
| DONNA E. LITTLE | 141 |
| Knowing”What My Body Can Do”: Physical Moments in the Social Production of Physicality | |
| MARTHA BELL | 155 |
| Implementing a Game Sense Approach in Youth Sport Coaching: Challenges, Change and Resistance | |
| RICHARD LIGHT | 169 |
| Embodied Boarders: Snowboarding, Status and Style | |
| HOLLY THORPE | 181 |
| Playing to Win or Trying Your Best: Media Reprerations of National Anxieties over the Role of Sport Participation During the 2002 Commonwealth Games | |
| EMMA H. WENSING, TONI BRUCE AND CLIVE POPE | 203 |
| ‘Tis Better to be Seen | |
| RACHEL SAUNDERS | 221 |
| Embodied Ways of Knowing | |
| KAREN BARBOUR | 227 |
| My Impossible Dream | |
| JENNIFER L. WAGGONER | 239 |
| <hr/> | |
| Improving Student Learning? Research Evidence About Teacher Feedback for Improvement in New Zealand Schools | |
| GAYLE EYERS AND MARY HILL | 251 |
| Policy Research and ‘Damaged Teachers’: Towards an Epistemologically Respectful Paradigm | |
| JOHN SMYTH | 263 |
| The Explanation of Social Differences in Reading Attainment: An Inspection of the PIRLS New Zealand Data | |
| ROY NASH | 283 |
| Juggling Priorities: A Comparison of Young and Mature Age Students’ Use of Time During Their First Semester of Teacher Education | |
| PENNI CUSHMAN | 299 |
| Children and Disability: Special or Included | |
| KEITH BALLARD | 315 |

IMPROVING STUDENT LEARNING? RESEARCH EVIDENCE ABOUT TEACHER FEEDBACK FOR IMPROVEMENT IN NEW ZEALAND SCHOOLS

GAYLE EYERS¹ AND MARY HILL²

¹ Southwell School, Hamilton

² Department of Professional Studies in Education, The University of Waikato

ABSTRACT *The importance of giving both evaluative and descriptive feedback to improve learning and achievement has been confirmed through research. This paper draws on assessment and feedback research to interrogate the evidence about how well teachers use feedback in New Zealand classrooms. It reveals that there is very little New Zealand research that investigates NZ teachers' use of feedback. Those studies that do investigate teachers' use of assessment information show that very little of the information gained from assessment is used to inform students about how to improve. More often teachers praise students, give unspecific information about their work and use the data gathered about students' competence and skills for school-wide aggregation and evidence of meeting targets. Questions are raised about why this might be the case, how professional development might be implicated in this and how the situation might be improved through wider policy alignment at both local and national levels.*

INTRODUCTION

The utilisation of effective feedback to enhance teaching and learning is not a new concept (Crooks, 1988; Sadler, 1989). The publication of Black and Wiliam's (1998a) review of the literature on classroom formative assessment further emphasises the importance of feedback's central role in enhancing student achievement. However, as Black and Wiliam (1998b) caution, while they have provided strong evidence that quality feedback can raise standards, it is no simple or easy matter to rapidly translate theorising about feedback into classroom practice. Currently, the policy dominance of an evidence-based view of teaching puts pressure on schools and teachers to focus closely on the products and performances of learning and use these to determine 'next-steps'. While this approach does produce 'results', particularly in terms of raising uniform standards in basic skills such as literacy and numeracy (Timperley & Wiseman, 2003, for example), research has also demonstrated that formative assessment (incorporating feedback, feed-forward and co-construction) is more complex and socially situated (e.g., Bell & Cowie, 2001a; Bishop, Berryman, Tiakiwai & Richardson, 2003; Nuthall, 1997) than some evidence-based approaches to teaching assume. Consequently, this review explores recent research regarding feedback and classroom learning to discover how well educational research recommendations have informed practical classroom implementation, particularly in the New Zealand setting, and focuses on research published since the major review of assessment and classroom learning by Black and Wiliam (1998a). Furthermore, this paper argues that there is research in the New Zealand context to indicate that professional development

and policies (including, but not restricted to, assessment) at both the school and national level can mitigate against teachers improving their feedback for learning in the classroom.

In this paper, feedback (including feed-forward and co-construction) is deemed to mean the information provided by a teacher or students about a student's performance, knowledge or understanding which leads to a change in that student's learning in relation to a particular goal (Black & Wiliam, 1998a; Clarke, Timperley & Hattie, 2003). Ramaprasad (1983) asserts this information can only be called feedback when it is "used to alter the gap" between "the actual level and the reference level of a system parameter" (p. 4). This concept has been further expanded by Sadler (1989) who maintains three "indispensable conditions" must be present for feedback to be effective: "the learner has to (a) possess a concept of the *standard* (or goal, or reference level) being aimed for, (b) compare the *actual* (or current) *level of performance* with the standard, and (c) engage in appropriate *action* which leads to some closure of the gap" (p. 121, emphasis in original).

Feedback for Learning, Motivation and Self Esteem

From a synthesis of meta-analyses on the effects of schooling, Hattie (1999) found that feedback is the most powerful single moderator that enhances achievement. He concluded that "dollops of feedback" (para. 42) would improve education but acknowledged this was too simplistic. It is significant that even if teachers provide 'positive' forms of feedback, not all students will receive it in the same way. It appears achievement is affected by learners' beliefs about their own learning capacity (Black & Wiliam, 1998a). Moreover, Black (1998) maintains that students' perceptions of themselves as learners "will be dependent on the quality of feedback that they have experienced over the years" (p. 134). Hence, there appear to be critical links between feedback, learner motivation and self-esteem.

According to Dweck (1986), motivational processes can affect success on cognitive tasks. She argues that students orient themselves to either learning goals, focusing on effort, or performance goals, focusing on ability. In addition, Dweck (1986) maintains that students either display adaptive motivational patterns that are characterised by seeking challenging goals and high persistence or display maladaptive patterns that are characterised by challenge avoidance and low persistence. Hence, if feedback affects self-perception over time, Brookhart (2001) suggests judgemental feedback that was not good may result in students simply consigning themselves "to the 'not a good student' category. Conversely, if feedback has been informational...students learn to verify their sense of efficacy for learning" (p. 156).

Foote (1999), in the USA, developed a system to observe 20 third-grade math teachers and record positive and negative teacher feedback as ability-oriented, effort-oriented, conduct-oriented or general. Although considered one of the least motivating forms of feedback, positive general feedback such as 'well done' was the most frequently used category of feedback even though it fails to provide any information. The next most common feedback was negative general feedback followed by negative conduct feedback, prompting Foote (1999) to assert that "teachers are expending a great deal of energy reprimanding students for poor conduct" (p. 164). Remarkably, the study found teachers gave little feedback attributing success to ability and effort.

In contrast with these findings, Hill and Hawk's (2000) report on the AIMHI Project, which was set up to raise achievement of Maori and Pacific Island

students in New Zealand, found examples of teachers giving specific, constructive feedback based on learning goals as well as praising students in order to enhance their self-worth; for example, 'that was awesome'. Encouraging feedback with a specific focus was also given. Hill and Hawk (2000) maintain that their data suggests students are appreciative of praise and not adversely affected by it, so long as they feel the praise is genuine. Students commented that they felt praise and encouragement created a positive feeling within the class. This confirms earlier research on the same project by Hill and Hawk (1998) in which they suggested a teacher's ability to make students feel special and important influenced the way students felt about learning and the effort they put into it.

Types of Feedback

In order to better understand the kinds of feedback that would both motivate and improve student learning, Tunstall and Gipps (1996a, 1996b) conducted a two-year study into feedback in the UK and proposed a model of the types of teacher feedback given to young children, as well as how they interpreted it. Their findings confirm that feedback plays a central role in learning and a range of different types could be identified and grouped within a broad framework. Accordingly, a teacher feedback typology was developed based on feedback being evaluative (positive and negative) or descriptive (achievement feedback and improvement feedback). The typology is a good starting point for teachers to reflect on their own practice. One version of it is reproduced in Table 1.

Tunstall and Gipps (1996b) found that even young children could articulate many of the types of feedback when describing how teachers helped them with their work. Although the evaluative types of feedback were strongly represented in children's perceptions, there were many examples of children understanding and acting on descriptive types of feedback as well. Significantly, Tunstall and Gipps (1996a) concluded that, "the judicious combination of both evaluative and descriptive types of feedback by the teacher creates the most powerful support for learning" (p. 403).

Hargreaves, McCallum and Gipps (2000) conducted a two-year research project looking in detail at the repertoire of teaching approaches used in primary classrooms in England. Although they contend their study provides new evidence of a repertoire of feedback strategies, it seems more an extension of the examples in Tunstall and Gipps (1996a). They found that while feedback was presented in a variety of ways, the contents could still be categorised as evaluative or descriptive. However, Hargreaves et al. (2000) do include the notion that a teacher's beliefs about how children learn, such as whether to use a transmission or constructivist approach, can influence their selection of feedback strategies.

As demonstrated in Table 1, Tunstall and Gipps (1996a) use a continuum to describe how the style, purpose and meaning of feedback changes as it moves from evaluative to descriptive. Similarly, Hargreaves et al. (2000) suggest that within the strategies they observed, "a gradual shift is perceptible" (p. 30). They assert that with evaluative feedback the teacher has all the control, whereas descriptive feedback encourages children to take control by ultimately being able to provide feedback to themselves, with support from their teacher. This explanation provides logical support for Sadler's (1989) assertion that valid, accurate feedback will not always result in development unless students learn to exercise more control over their own learning.

Table 1. Feedback Typology (adapted from Tunstall & Gipps, 1996b, p. 190)

| <i>Type of feedback</i> | <i>Evaluative</i> | <i>Evaluative</i> | <i>Descriptive</i> | <i>Descriptive</i> |
|-----------------------------|-----------------------------------|---|---|---|
| | | | 1. Achievement | Feedback |
| 1. Positive Feedback | Type A Rewarding | Type B Approving | Type C Specifying attainment | Type D Constructing achievement |
| | E.g., Rewards | E.g., Positive personal expressions Warm expression of feeling General praise | E.g., Specific acknowledgement of attainment Use of criteria in relation to work/behaviour; teacher models More specific praise | E.g., Mutual articulation of achievement Additional use of emerging criteria; child role in presentation Praise integral to description |
| | | | 2. Improvement | Feedback |
| 2. Negative Feedback | Punishing | Disapproving | Specifying improvement | Constructing the way forward |
| | E.g., Punishments | E.g., Negative personal expressions Reprimands; negative generalisations Negative non-verbal feedback | E.g., Correction of errors More practice given; training in self checking | E.g., Mutual critical appraisal Provision of strategies |

Ronayne (2002), also in the UK, used a different approach for categorising written feedback when examining over 1,100 scripts that had been marked by eight teachers across a range of subjects at secondary level. He derived five types of feedback, namely:

- Organisational (correction of surface features)
- Encouraging/supportive (general praise)
- Constructive (how improvement can take place)
- "Think" (encourage reflection and prompt further thought)
- Challenging (show high expectations and extend thinking).

Ronayne's work provides confusing percentage breakdowns regarding teacher feedback comments, student recall and feedback based on learning objectives. On one hand, the results indicate marking should be focused on constructive and challenging comments. On the other hand, Ronayne (2002) advocates using encouraging/supportive comments for motivation, even though students did not rate this highly. He also found that written feedback followed by oral feedback led to more accurate retention. The somewhat contradictory nature of these findings suggests some of the difficulties and complexities associated with knowing how to provide effective written feedback.

The Use of Feedback in New Zealand

While researching the quality of teacher feedback in mathematics in New Zealand schools, Knight (2003) used Tunstall and Gipps' (1996a) feedback typology to break down the recorded examples of feedback. She acknowledged that feedback is often subtle and missed by recording strategies such as tape recording and written marking that she used as evidence. An analysis of the findings showed 83 percent of oral feedback was evaluative, with 74 percent in the evaluative/positive (Type B1) category. Consequently only 17 percent was descriptive, with 13 percent categorised as achievement feedback (Type C1 or Type D1) and no feedback recorded as improvement feedback (Type D2). Knight (2003) found analysing written feedback to be problematic as, "inherent in the typology's constructivist approach to feedback is the notion of teacher discussion and conversation with the student, which written feedback could not display" (p. 44).

Post-observation discussions with teachers revealed confusion between instruction and feedback, together with difficulty in giving a definition of effective feedback. This surprising and thought-provoking research showed that a 'judicious' combination of both types of feedback was neither evident nor even clearly understood, resulting in "many valuable learning opportunities being lost in the desire to be positive" (Knight, 2003, p. 44). Furthermore, Knight (2003) presents a well-argued case for feedback to be addressed within a whole school policy.

Another recent New Zealand study about the use of running records in reading found that very little formative use was made of the information gained from their use (Timperley, 2003). Running records comprise a detailed record of a student's oral reading and are used by almost all New Zealand schools, particularly by teachers of Year 1 and 2 children. Although the main purpose for administering a running record is to give the child's teacher a way of finding out about a student's reading strategies and use this information as feedback to the student about how to improve these strategies (Clay, 1993), Timperley found very little use of running records for feedback. Most frequently the teachers used this information to provide a reading age or to establish a text or grouping level. In all of the schools she studied, data on the children's text levels were forwarded for use by the school management team in aggregating school achievement and for identifying children with special educational needs. As Timperley (2003) points out, even though this assessment instrument was designed to direct teachers to give feedback and feed-forward to individual learners to improve their reading, the powerful requirements of school and national policies for teachers to provide 'evidence' on which to base organizational decisions tends to overwhelm the formative purpose in almost every case.

Strategies to Improve Feedback

Despite these disappointing findings, studies are continuing both in New Zealand and overseas to investigate and develop practical classroom strategies that improve feedback. These include strategies such as improved questioning, marking as feedback, student-teacher interaction, and student self assessment. In this paper we review just those focused on teacher practices. While there is certainly evidence to show that improving feedback through student self

assessment is both important and useful (Clarke, 2003, for example) it is beyond the scope of this paper.

Torrance and Pryor (2001) report that teacher-researchers working in their own classrooms in the UK found in many cases that they "seemed to close down opportunities for exploring student understanding rather than opening them up" (p. 621). In their study, in order to develop a more 'divergent' approach, teacher-researchers sought to enhance feedback through improving their questioning skills based on a descriptive and analytic framework adapted from Torrance and Pryor (1998). Similarly, Black, Harrison, Lee, Marshall and Wiliam (2003) and Clarke (2003) have found that the quality of dialogue is enhanced in effective question-and-answer sessions, as well as promoting higher order thinking. Successful classroom strategies include more effort being put into framing relevant questions, increasing wait time to allow students more time to think and sharing answers in pairs before discussing with a wider audience. Black et al. (2003) assert, "the only point of asking questions is to raise issues about which the teacher needs information or about which the students need to think" (p. 42). Knight (2003), in New Zealand, agrees, asserting that questioning can be "a form of instruction rather than feedback" (p. 44) if it is not being used to 'close the gap'.

Black et al. (2003) contend that grades used as feedback often discourage lower-achieving students and, therefore, teachers in their research study "began to work on producing quality comments that could direct and motivate their students to improve their work" (p. 44). Issues teachers faced with comment-only marking (as opposed to graded marking) are clearly discussed in their report, and included the time-consuming nature of comment-only marking and the need to develop more efficient ways of writing comments. However, it is interesting to note how the classroom culture began to change when comment-only marking was used. Students felt it was worthwhile to put more effort into the work because they considered the feedback and increased personal dialogue was improving their learning. Additionally, teachers realised they needed to create an environment/classroom culture that supported and fostered learning.

The relationship between feedback and classroom culture is strongly supported by Bishop et al. (2003) in New Zealand. Through discussions with Year 9 and Year 10 Maori students in New Zealand mainstream classrooms, it emerged that teachers who had a behaviour feedback focus were considered less effective by these students than teachers with an academic feedback and feed-forward focus. Students knew their learning could improve if they were provided with appropriate feedback. For example, one student stated, "When they just tick a page you know they probably haven't read it" and another student responded, "I appreciate it when they just put some constructive criticism at the end. I mean, you don't always do good" (Bishop et al., 2003, p. 110). As teachers participating in the study changed their feedback to focus on learning rather than behaviour, there was a noticeable increase in student engagement, self-esteem and achievement.

Also in New Zealand, Bell and Cowie (2001a, 2001b, 2001c) conducted a research project to explore the formative assessment practices of primary and secondary teachers of science. Their findings led them to define formative assessment 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, 2001b, p. 536). These teachers considered responsiveness to be at the heart of formative assessment, meaning information gathered through interactive feedback was used to change or improve learning and teaching.

Furthermore, the teachers emphasized the crucial role that their own subject and pedagogical knowledge played in their ability to mediate the learning of science by providing explicit, relevant feedback and feed-forward.

The teachers emphasized that their sustained and responsive use of formative assessment required more than learning about a range of new and different assessment tasks and strategies. It also required a change in how they viewed and used their interactions with students. (Bell & Cowie, 2001c, p. 48)

So Why is Improving Feedback Problematic?

Despite knowing about the importance of responsive interaction providing the kind of feedback and feed-forward most necessary to improve learning (Bell & Cowie, 2001b; Bishop et al., 2003; Black & Wiliam, 1998a, Tunstall & Gipps, 1996a, 1996b), recent research in New Zealand indicates that teachers are not increasing their use of it. Furthermore, neither does professional development appear to consistently result in teachers improving this aspect of their practice. Dixon and Williams (2003) interviewed 40 primary school teachers and found, as others have done (see also Hill, 2000), that while teachers generally accept the importance of formative assessment that leads to feedback for improving learning, all reported that the result of their professional development had been a greater focus on standard setting, recording and reporting. Even though some current professional development programmes have been called 'Assessment for better learning' and 'Assessment to learn', some appear to have resulted in teachers creating 'standards' and achieving consistency in terms of levelling children's performances. The assumption that having knowledge about 'levels' of learning would lead to better teaching feedback does not appear to have been realised. These authors emphasised that the professional development had had little to do with actually providing teachers with the strategies to help them improve students' learning.

The absence of assistance with improving feedback strategies, particularly those to do with student-teacher interaction, may well relate to knowledge (or lack of knowledge) about formative assessment and feedback for learning, as well as subject knowledge. For instance, two case studies of schools including the Assessment Resource Banks (ARBs) into their assessment practice (Boyd, 2003) discuss the use of these assessment tools for formative and summative purposes. While Boyd (2003) explains how teachers' knowledge of deep and surface features of writing increased through the use of the ARBs, the formative feedback strategies described appear to be consistent with strategies described by Bell and Cowie (2001b) as "planned" and by Torrance and Pryor (1998) as "convergent". The assessment using the ARBs (Boyd, 2003) is described as being used to diagnose strengths and weaknesses and to focus teachers on the students' progress towards achieving particular learning intentions. There are no examples of teachers using the interactive (Bell & Cowie, 2001b) and/or divergent (Torrance & Pryor, 1998) strategies that have been shown to improve feedback through teacher-student interaction. There is research, however, to indicate that teachers can improve their teaching and feedback by constructing and using strategies that enable them to find out about and interact with students' thinking, during teaching (e.g., Bishop et al., 2003; Pearson & Bell, 1993). Such strategies as concept mapping, brainstorming, eliciting students' questions and interviewing (Pearson

& Bell, 1993) expand the potential for teachers to take account of existing knowledge and skill, and use it to provide feedback and for co-constructing the way forward.

Another reason put forward for the lack of improvement in giving feedback is that classroom realities make it difficult for teachers to achieve this type of assessment-driven instruction (Conca, Schechter & Castle, 2004). In New Zealand, research appears to support this finding and suggests the reason for this might be that the professional development and national policies may not be focusing on the right things. Recent attention to benchmarking, target setting and achieving consistent 'standards' within schools may have diverted attention away from improving teachers' interactive feedback strategies (Hill, 2000). In addition, schoolwide assessment systems and accountability demands have been shown to reduce the amount of time and energy teachers have for providing 'dollops of feedback' (Dixon, 1999; Hill, 2000). While Dixon and Williams (2003) found that teachers themselves recommended carrying out fewer (prescribed) assessment tasks and focusing on providing improvement feedback, principals and lead teachers seemed not to fully understand how school policies impeded teachers' ability to do this. Improving the 'assessment literacy' and knowledge about assessment for learning and the feedback strategies of lead teachers and principals is, therefore, strongly recommended.

A further issue relates to the actual nature of the feedback itself. While feedback has always been an integral part of the teaching and learning process, it is the complex nature of feedback that can have a positive or negative impact on learning. As argued above, despite recommendations that all feedback should have a learning focus, the bulk of teacher feedback still seems to be evaluative, positive and general praise (e.g., Foote, 1999; Knight, 2003). On one hand, the potential detrimental effects of evaluative feedback on a student's self-esteem and self-efficacy are not clearly understood by all teachers (Brookhart, 2001; Dweck, 1986; Hattie & Jaeger, 1998) while, on the other, teachers and students believe that genuine praise is important for encouragement and creating a positive classroom culture (Hill & Hawk, 2000). If improved learning is to occur, students need to understand the feedback they are given and know what to do with it. Moreover, as students come to internalise the attending, appraising and responding elements of teacher-supplied feedback, Sadler (1998) contends they will develop the self-monitoring skills necessary for independent lifelong learning. Indeed, in mainstream Year 9 and Year 10 classrooms in New Zealand, Bishop et al. (2003) found that student achievement was raised through high levels of academic feedback and feed-forward, positively given.

CONCLUSION

Unanswered questions, which may be the basis for future research, remain. For example, the research evidence cited above suggests that teachers in New Zealand schools do not appear to be improving in their ability to use feedback to improve learning. This is despite the significant amounts of support being given through professional development initiatives and the release of several books in New Zealand designed to inform and assist teachers to improve their formative feedback strategies. Some reasons for this have been discussed in this paper, including teachers' and school leaders' own subject and pedagogical knowledge (or lack of it), the unintended consequences of professional development, school and national assessment, appraisal and performance management policies, and

the pressure on teachers to gather and use evidence to produce outcomes and meet standards. Thus, it is argued in this paper that in self-managing schools, where accountability and assessment for reporting are emphasized, teachers are subtly but powerfully influenced to collect assessment information, often at the expense of using information about student learning for providing focused student-centred feedback.

But while research has indicated that school policies for accountability work against teachers using assessment for improvement through feedback (Hill, 2000), little research has focused on how to turn teachers away from this as the main focus and towards the use of improvement feedback. The signs are that professional development in assessment practices and feedback are important but not sufficient to effect this change in the New Zealand self-managing school context (Dixon & Williams, 2003; Hill, 2000). There are some indications that basic skills, such as literacy and numeracy, can be enhanced through the analysis of data to inform teaching but, if within-school disparities are to be addressed, cultural, contextual and discursive factors will need to inform teachers' feedback, feed-forward and co-construction strategies.

As Black and Wiliam indicated at the end of their 1998 review, changes in classroom practice in line with a set of guiding principles that include understanding feedback within a sociocultural view of learning and teaching are central rather than marginal. While tertiary qualification courses and professional development programmes should play their part in assisting teachers to improve their feedback practices, individual school and national policies that focus attention on feedback and improvement, rather than accountability demands, will also be critical in effecting quality teaching. Just as teachers turned to check listing when the education policies of New Zealand required that schools account for children's learning in terms of the achievement objectives, national and school policies strongly aligned with feedback and feed-forward would provide a powerful driver to turn classroom practice in a formative direction.

REFERENCES

- Bell, B., & Cowie, B. (2001a). *Formative assessment and science education*. Dordrecht: Kluwer Academic Publishers.
- Bell, B., & Cowie, B. (2001b). The characteristics of formative assessment in science education. *Science Education*, 85, 536-553.
- Bell, B., & Cowie, B. (2001c). Teacher development for formative assessment. *Waikato Journal of Education*, 7, 37-49.
- Bishop, R., Berryman, M., Tiakiwai, S., & Richardson, C. (2003). *Te Kōtahitanga: The experiences of year 9 and 10 Māori students in mainstream classrooms*. Wellington, New Zealand: Ministry of Education.
- Black, P. (1998). *Testing: Friend or foe? Theory and practice of assessment and testing*. London: Falmer Press.
- Black, P., Harrison, C., Lee, C., Marshall, B., & Wiliam, D. (2003). *Assessment for learning: Putting it into practice*. Maidenhead, UK: Open University Press.
- Black, P., & Wiliam, D. (1998a). Assessment and classroom learning. *Assessment in Education*, 5(1), 7-74.
- Black, P. & Wiliam, D. (1998b). *Inside the black box: Raising standards through classroom assessment*. London: King's College.
- Boyd, S. (2003). ARBs in the assessment mix. *SET: Research Information for Teachers*, 2, 28-34.

- Brookhart, S. (2001). Successful students' formative and summative uses of assessment information. *Assessment in Education*, 8(2), 153-169.
- Clarke, S. (2003). *Enriching feedback in the primary classroom*. London: Hodder & Stoughton.
- Clarke, S., Timperley, H., & Hattie, J. (2003). *Unlocking formative assessment: Practical strategies for enhancing students' learning in the primary and intermediate classroom* (New Zealand edition). Auckland, New Zealand: Hodder Moa Beckett Publishers.
- Clay, M. M. (1993). *An observation survey of early literacy achievement*. Auckland, New Zealand: Heinemann Education.
- Conca, L., Schechter, C., & Castle, S. (2004). Challenges teachers face as they work to connect assessment and instruction. *Teachers and Teaching: Theory and Practice*, 10(1), 59-75.
- Crooks, T. (1988). The impact of classroom evaluation practices on students. *Review of Educational Research*, 58(4), 438-481.
- Dixon, H. (1999). *The effect of policy on practice: An analysis of teachers' perceptions of school based assessment practice*. Unpublished M.Ed Admin Thesis. Massey University.
- Dixon, H., & Williams, R. (2003). Formative assessment and the professional development of teachers: Are we focussing on what is important. *SET: Research Information for Teachers*, 2, 35-39.
- Dweck, C. (1986). Motivational processes affecting learning. *American Psychologist*, 41(10), 1040-1048.
- Foote, C. (1999). Attribution feedback in the elementary classroom. *Journal of Research in Childhood Education*, 13(2), 155-166.
- Hargreaves, E., McCallum, B., & Gipps, C. (2000). Teacher feedback strategies in primary classrooms – new evidence. In S. Askew (Ed.), *Feedback for learning* (pp. 21-31). London: Routledge Falmer.
- Hattie, J. (1999, August 2). *Influences on student learning*. Inaugural Lecture: Professor of Education, University of Auckland. Retrieved February 11, 2004 from <http://www.arts.auckland.ac.nz/edu/staff/jhattie/Inaugural.html>.
- Hattie, J., & Jaeger, R. (1998). Assessment and classroom learning: A deductive approach. *Assessment in Education*, 5(1), 111-122.
- Hill, J., & Hawk, K. (1998). Aiming for student achievement: How teachers can understand and better meet the needs of Pacific Island and Maori students. *SET: Research Information for Teachers*, 2(4), 1-4.
- Hill, J., & Hawk, K. (2000). *Making a difference in the classroom: Effective teaching practice in low decile, multicultural schools*. Wellington, New Zealand: Ministry of Education.
- Hill, M. (2000). *Remapping the assessment landscape: Primary teachers reconstructing assessment in self-managing schools*. Unpublished PhD Thesis. The University of Waikato.
- Knight, N. (2003). Teacher feedback to students in numeracy lessons: Are students getting good value? *SET: Research Information for Teachers*, 3, 40-45.
- Nuthall, G. A. (1997). Understanding student learning and thinking in the classroom. In B. Biddle, T. Good & I. Goodson (Eds.), *International handbook of teachers and teaching*, 2 (pp. 681-768). Boston: Kluwer Academic Publishers
- Pearson, J., & Bell, B. (1993). *The teacher development that occurred: A report of the Learning in Science Project*. Hamilton, NZ: Centre for Science and Mathematics Education Research, University of Waikato.

- Ramaprasad, A. (1983). On the definition of feedback. *Behavioral Science*, 28(1), 4-13.
- Ronayne, M. (2002). Marking and feedback. *SET: Research Information for Teachers*, 2, 8-11.
- Sadler, R. (1989). Formative assessment and the design of instructional systems. *Instructional Science*, 18, 119-144.
- Sadler, R. (1998). Formative assessment: revisiting the territory. *Assessment in Education*, 5(1), 77-84.
- Timperley, H. S. (2003). Evidence-based leadership: The use of running records. *New Zealand Journal of Educational Leadership*, 18, 65-76.
- Timperley, H., & Wiseman, J. (2003). *The sustainability of professional development*. Report to the Ministry of Education. Wellington: Ministry of Education.
- Torrance, H., & Pryor, J. (1998). *Investigating formative assessment: Teaching, learning and assessment in the classroom*. Buckingham, UK: Open University Press.
- Torrance, H., & Pryor, J. (2001). Developing formative assessment in the classroom: Using action research to explore and modify theory. *British Educational Research Journal*, 27(5), 615-631.
- Tunstall, P., & Gipps, C. (1996a). Teacher feedback to young children in formative assessment: A typology. *British Educational Research Journal*, 22(4), 389-404.
- Tunstall, P. & Gipps, C. (1996b). 'How does your teacher help you to make your work better?' Children's understanding of formative assessment. *The Curriculum Journal*, 7(2), 185-203.

Copyright of *Waikato Journal of Education* is the property of *Waikato Journal of Education* and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.