

It's Time for a New Learning Agenda in Policy, Research and Practice in Education:

Making a Bigger Difference in Desired Educational Outcomes for Diverse Learners through Collaborative Cultures of Inquiry and Development

*Introduction to a paper in preparation for Pacific Circle Consortium June 27, 2007
Adrienne Alton-Lee, Chief Education Adviser,
Iterative Best Evidence Synthesis Programme, New Zealand Ministry of Education
The views in this paper are not necessarily those of the New Zealand Ministry of Education*

This paper is intended to be a stimulus for discussion and engagement with the themes proposed by the Pacific Circle Consortium for their 31st Conference: '*Education in a Pacific Circle Context: Educational Outcomes for the Twenty-first Century*'. The question I have been asked to address specifically is 'How do we organise schooling, while recognizing local diversity, to better accomplish local/national and global outcomes?' Much of the evidence cited in this paper can be explored in more depth at <http://educationcounts.govt.nz/goto/BES>

A Learning Agenda across Policy, Research and Practice

To better accomplish desired local, national and global outcomes within and across our communities, we need to build capacity for systemic learning and sustainable educational development. Educational development denotes not only improvement resulting in enhanced outcomes for all learners but also transformation as education anticipates and responds to futures challenges.

I advance the case for a multi-level learning agenda in education: an agenda for policy learning, research learning, and educator learning – an agenda in which education systems and their communities better learn from each other in the interests of children. The touchstone for this agenda lies in the links between educational practices and desired educational outcomes for diverse learners. I propose that the systemic engine for such an agenda is strategic and collaborative (use of, and iterative contribution to) research and development in education.

This vision is of education valuing and building upon, but moving beyond, its craft practice roots, and its 'rediscovering the wheel' history. The goal is not one of tired educators negotiating rapidly changing policies and fads, and working harder to produce a more efficient education system for new demands of knowledge societies. The vision is of shared knowledge about what works and why in local contexts as a valued, dynamic and transformational resource enabling an education system to renew and sustain itself. A stronger and renewing evidence base about what works offers value for money, value for educator time, and value for learners. The energy for such a vision comes from the synergies and rewards of educational development that genuinely makes a much bigger positive difference not only for children and young people but also for leaders, educators, families and wider communities.

The Primacy of Local Context: A New Zealand Perspective

The Pacific Circle Consortium dialogue exemplifies the importance of, and provides leadership in, international collaboration as a resource in this agenda. The diversity of the Consortium also highlights the need for questions to be framed and addressed within the unique circumstances of local contexts because of the primacy of context in influencing educational development.

The perspective I am bringing to this conference, and the questions posed, is that of a programme established as a catalyst for collaborative knowledge building and use in New Zealand: the Iterative Best Evidence Synthesis [BES] Programme. The focus on explaining what works in local contexts in BES has been highlighted by Allan Luke and David Hogan in the *World Yearbook of Education: Educational Research and Policy*¹

The most comprehensive approach to evidence is the New Zealand Ministry of Education's Iterative Best Evidence Synthesis Programme... What is distinctive about the New Zealand approach is its willingness to consider all forms of research evidence regardless of methodological paradigms and ideological rectitude, and its concern in finding contextually effective, appropriate and locally powerful examples of "what works". Its focus is on capturing and examining the impact of local contextual variables (e.g., population, school, community, linguistic and cultural variables). Indeed, 'what authentically works' in educational interventions may be locally effective with particular populations, in particular settings, to particular educational ends.

Learner Outcomes as a Touchstone

New Zealand's Iterative Best Evidence Synthesis (BES) Programme is a collaborative knowledge building and use strategy. The focus is to develop a series of inter-linked syntheses that explain influences on diverse learner outcomes. The Iterative BES Programme synthesises bodies of educational research that provide credible evidence about influences on a range of desired outcomes for diverse learners (*what? what magnitude of impact? under what conditions? for whom? why? and how?*) The approach uses a fit-for-purpose methodology that attends to the New Zealand context including indigeneity and the historic pattern of wide disparities in NZ educational outcomes.

Part of the rationale for the incontrovertible concern with impacts on diverse learners is the compelling evidence across studies that have linked educational goals, processes mediating learning and student outcomes, that well-intentioned, caring and experienced teachers and teacher educators can unknowingly teach in ways that have impacts counter to their own goals. Bossert (1979)², for example, revealed ways in which teacher management of tasks and interactions with students created negative impacts on peer relationships and social outcomes. Doyle (1983)³ revealed how well-meaning teacher strategies to make learning safer undermined the intellectual demands of tasks and could heighten rather than lessen the risk of failure. Timperley, Wilson, Barrar and Fung (2007)⁴ identified studies where professional development interventions had a negative impact on student outcomes, burdening teachers with changing their practice but lowering student achievement below the gains being made before the intervention. The concern for impact on outcomes is similarly critical for well-intentioned policy settings and initiatives that can also have impacts counter to their goals and do harm, for example, policy initiatives related to drug education (Biddulph, Biddulph & Biddulph, 2003)⁵.

An outcomes-linked approach can reveal that widely used educational practices can have little or even negative impacts particularly on those students traditionally underserved in schooling. A report by the New Zealand Education Review Office (2003)⁶ showed that the learning styles inventory matching approach is widely used in New Zealand (as a result of a wave of professional development). Learning styles matching approaches have been found to be problematic in international reviews of effectiveness (e.g. Irvine and York, 1995)⁷ and linked to less effective instructional experiences for Māori and Pasifika than for other learners in junior class mathematics in New Zealand (Higgins, 2001)⁸. Māori and Pasifika⁹ learners were classified as kinaesthetic learners and encouraged to work with blocks while other learners focussed on metacognitive strategies, for which there is, by contrast, evidence of positive links to higher achievement (for example: Cardelle-Elawar, 1992¹⁰; Marzano, Pickering & Pollock, 2001¹¹).

Desired outcomes are by nature and necessarily subject to a contested and evolving discourse about what parents and wider communities want for all our learners. BES writers are required to seek out research evidence relevant to a range of outcomes previously identified in consultative processes with wider communities including academic outcomes, skill development, social outcomes, cultural identity, disposition as a learner, self-regulatory skills, enjoyment of learning, preparation for local and global citizenship and success and well-being, rather than just a narrow focus on particular measures of academic achievement. Particular emphasis is placed on evidence about approaches that strengthen a range of outcomes at the same time. For example, research focused on outcomes-linked evidence about the interdependence of the social and the academic in mathematics education (Cohen, 1994¹²; Stein, 2001¹³).

While there is likely to be consideration of evidence of impacts on a wide-range of student outcomes in every BES, the focus on research that has illuminated impacts on learner outcomes is incontrovertible in BES development and the justification for the use of the term 'best'. That is 'best' does not mean 'best available'; rather 'best' denotes evidence and explanation about how educational or other processes impact positively on a range of outcomes for diverse learners.

The Commonality of Difference

There are new challenges for education systems in knowledge societies. It is no longer sufficient for education systems to sort learners into those who pass and those who fail. Rather all learners need to be well-served by their education to develop their capabilities, their sense of belonging, their well-being and their abilities to succeed and contribute to wider communities. Governments are looking to education systems to rise to the challenge to be more responsive to the diversity of their learners and to meet the higher expectations and future-focus required by knowledge societies.

The results of the studies from the Programme for International Student Assessment (PISA) show marked differences amongst education systems in how well 15-year-old students are able to apply their learning in mathematics, science and reading literacy (OECD, 2001¹⁴; 2004¹⁵). They also show marked differences in disparities between groups of students within countries. New Zealand has high mean scores, performing in the second highest band of countries across the PISA studies. But New Zealand's results show relatively high disparities in achievement by comparison with most OECD countries. Despite, high achievement by many Māori and Pasifika learners, there is a pattern of system underperformance, particularly for Māori but also for Pasifika in New Zealand schooling.

The high disparities, the relatively high variance within schools in the New Zealand PISA results, and our rapidly growing demographic profiles for those learners traditionally underserved by New Zealand schooling, indicate a need for teaching, educational leadership and systemic development to be more responsive to diverse learners.

Because the context for this work is New Zealand, all BES developments are informed by, and inform educational practice in Māori and English-medium education and other language contexts in New Zealand schools. Māori have a treaty relationship with the Crown that protects Te Reo (Māori language) and tikanga Māori (Māori culture) and guarantees Māori the same educational opportunities as non-Māori. However, the published BESs provide substantial evidence over some decades of inequitable teaching of Māori learners - fewer teacher-interactions, less positive feedback, under-assessment of capability, mispronounced names and so on (Benton, 1986¹⁶; Carkeek, Davies & Irwin, 1994¹⁷; Clay, 1985¹⁸; Millward, Neal, Kofoed, Parr, Kuin Lai & Robinson, 2001¹⁹; St George, 1983²⁰; Thomas, 1984²¹). Although Māori medium education has only been a very recent system provision in New

Zealand, and despite resourcing challenges in a language revitalisation context, early cohorts of students emerging from continuous Māori medium education are performing more highly than Maori students in English medium contexts.

As is similarly the case for many countries, New Zealand's population projections show increasing diversity by ethnicity and multiple cultural heritages. Over and above cultural heritage, classrooms and other educational groupings of students are always characterised by diversity or heterogeneity. The diversity of any group of learners can be unpacked across many dimensions. For example, diversity is a feature of the varied experiences the students bring to their learning of particular topic, and their previous achievement levels in relation to the topic or skill area whether high, average, low or gifted. What students bring to the classroom is in turn influenced by their gender, families, and wider affiliations and heritages, and the extent to which these become resources in their in-school learning. There are substantial research literatures that show these aspects of learner identity and background to be integral to educational achievement or failure, particularly when there are cultural mismatches between home and school (Alton-Lee, 2003)²².

However, students do not fall into simplistic categories by identity. Rather, for students, family social class, ethnicity/ies, cultural heritages, gender, and dis/ability intersect in ways that are often likely to be salient for their participation and learning. Further, students continually change and grow. There is much evidence that reveals difference to be salient in education, albeit in complex and context-specific ways. Our approach is to put difference at the centre of this work through a 'responsiveness-to-diversity framework'. Because difference is a characteristic that all learners share, the approach allows for a 'universalising discourse of difference' (Britzman, 1995²³; Town, 1998²⁴). This approach moves away from 'norm' and 'other' thinking that has constrained mainstream educational thinking to focus on the homogeneous and the 'mean' and seeks to strengthen our evidence base about what works for all learners.

The daily and complex challenge for teachers is that they need strategies to teach a diverse group of learners effectively and simultaneously. Educators need to be working effectively and simultaneously with students with different prior knowledges and experiences, speakers of different languages, high and low achievers, students with multiple, fluid and complex ethnic, gendered and social class cultures, heritages (including indigenous heritage) and identities, and students who bring varied dis/abilities and cultural resources to their learning. This is where the evidence can be particularly helpful, because it identifies evidence-based strategies and approaches that have enabled teachers to be effective with their whole class. Accordingly our collaborative knowledge building and use approach, in order to be useful in education, has at its foundation the goal of being more effective with diverse learners – at the same time.

BES Methodology

A rigorous pluralist approach is used in BES without compromising the links to outcomes. We have used the metaphor of a 'jig saw puzzle' to describe the best evidence synthesis methodology because pieces of the puzzle about the links to student outcomes are often spread over and embedded within a wide range of research studies including practitioner research (cf. Pawson, 2006²⁵ 'digging for nuggets'). Where possible, effect sizes are used or constructed to allow relative magnitude of impact of different approaches to be considered.

A realist²⁶ approach gives primacy to explanation and theoretical coherence in BES. The rationale for the realist approach is that theory is the tool that produces understanding in those using the evidence. The use of theory enables a future-focussed and context sensitive approach to building upon what has gone before. A feature of BES, and its concern to maximise

accessibility without sacrificing meaning, is the use of vignette and case to exemplify the theory and bring the findings to life for educators and policy makers.

BES writers are required to draw upon systems thinking about the inter-dependencies and ecological relationships that influence effectiveness of any one part of the education system. For example, the BES focussed on family and community influences²⁷ highlights the impact of poverty and health issues such as student hearing on educational outcomes, calling for a wider societal and inter-agency policy response to support educators in their work. Each successive BES contributes to a developing health-of-the-system framework for New Zealand education. Developing this framework is a particular focus of our educational leadership BES in progress²⁸.

A Collaborative Knowledge Building Approach

The decision to take a collaborative approach meant more time would be needed for BES development but laid the foundations for more impact. While such dialogue is challenging, Ginsburg and Gorostiaga (2003)²⁹ explain the costs of not taking such a collaborative approach in the *Limitations and possibilities of dialogue among researchers, policy makers and practitioners*’:

Dialogue isn't necessarily more efficient, but it's more democratic and, therefore, more effective.

...Our preference is also based on the belief that in the long run dialogue and participation by a wide range of stakeholders produce better and more relevant educational research, policy and practice. ...Certainly, it may be easier – and, in that sense, more efficient – for researchers, policy makers, and practitioners in education to engage in action (or even in praxis) in isolation of members of the other groups. However, the decisions that are made and the actions that are pursued are likely to be less effective. This is the case not only because the quality of judgements may be lower but also because the activities of one group may detract from or cancel out those of other groups.’ (p. x)

The rationale is that bringing together rigorous and useful bodies of evidence about what works in education needs to embed within its approach, ways of working that attend to the ‘knowledge utilisation’ challenge as well as the knowledge building challenge. If such ways of working are built into knowledge building then the endeavour of itself can be a transformational process that not only constructs a new kind of dialogue and understandings amongst policy workers, leaders, practitioners, and researchers but also provides the foundation for using the knowledge to make a bigger difference in education.

There is a mandate within the NZ public service for the kind of intensive engagement with stakeholders used in BES development. Eleven case studies of innovation in the public service commissioned by Treasury, the Department of Prime Minister and Cabinet and the State Services Commission (Wright & de Joux, 2003)³⁰ identified the following implications for effective and innovative policy development and implementation:

- *Develop diverse and diffuse invisible colleges, partnerships, and collaborations across agencies, individuals and organisations*
- *Exploit opportunities by consistent forward planning and engagement with stakeholders*

A recent review of evidence about the links between research and practice³¹ found that interactive approaches such as the development of partnerships and collaborations between researchers, policy advisers and practitioners facilitate the adaptation of research findings to local contexts. The reviewers³² note that success is constrained by “the time and energy required to establish effective working relationships, differences in culture, goals, information

needs, timescales, power, regard, systems and language, issues of project control and direction (p.344).” The Iterative Best Evidence Synthesis Programme is seeking to negotiate these kinds of constraints through agreed national *Guidelines*, strategic partnerships, power sharing and iterative processes that enable policy workers, researchers and educators to learn not only from emerging BES findings but also from each other from the earliest scoping stage of a new BES through to a collaborative and evidence-informed approach to dissemination and use.

While the collaboration across policy, research and practice is an ongoing challenge it also keeps each of us focussed on the central and moral purpose of education, as indicated in the following statement about the Iterative Best Evidence Synthesis Programme by a secondary teachers’ union representative:

PPTA regards itself as a partner in the BES programme. As the policy adviser at PPTA specialising in professional issues, I have been closely involved with the Best Evidence Synthesis work ever since 2003.

I have served on the advisory groups for the BES on Maths, Pangarau/Social Studies, Professional Learning and Leadership.

We also have a number of PPTA members involved in various ways on reference groups or serving as advisers or quality assurers for the projects.

The President and I were involved in developing strategy around the launch of the Alton-Lee and Biddulph BES work in 2003. I was part of the reference group which developed the Guidelines.

I believe that the BES programme is absolutely committed to promoting social justice, and for that reason our union, like NZEI, has committed itself to working alongside this research programme. The whole diversity framework that is an intrinsic part of BES (see the Guidelines) guides our thinking and our critiquing of work in progress, and the analysis of diversity that is being used is a very sophisticated and sensitive model light years away from the concept of diversity reflected in much other research work. Ensuring that teaching addresses issues of diversity is fundamental to promoting social justice in education.

Judie Alison, Advisory Officer (Professional Issues) PPTA (February, 2006)

What Makes a Bigger Difference to Desired Education Outcomes?

To guide questions about how schooling is organised and what is prioritised, it is useful to turn to the evidence about what makes a bigger impact on student outcomes. A literature review³³ commissioned by the New Zealand Ministry of Education indicated that about 40 to 65 percent of variance in outcomes is attributable to the influences of family and communities, depending on the outcome of focus. An analysis³⁴ of multi-level studies of school and teacher/class influences showed the impact on variance at the teacher/class level to be variously 16 percent to 59 percent of the residual variance in learner outcomes, depending on the subject area, level of schooling, and outcome of interest. The largest teaching impacts on residual variance have been identified in a recent Australian study across a wide range of subjects at the senior secondary school level^{35,36,37}. A limitation of this framework to date is that most of the multi-level modelling studies on school and class effects restrict their consideration to academic outcomes.

The impact on outcomes of school level influences (from 0-20.9% of impact on variance) varied considerably depending, for example, on the length of time the learner had spent in the

school, the subject area, and school level policies such as allowing, or not, lower achievers to be assessed. But the school level impact was consistently far smaller than that at the teacher/class level both for primary and secondary education.

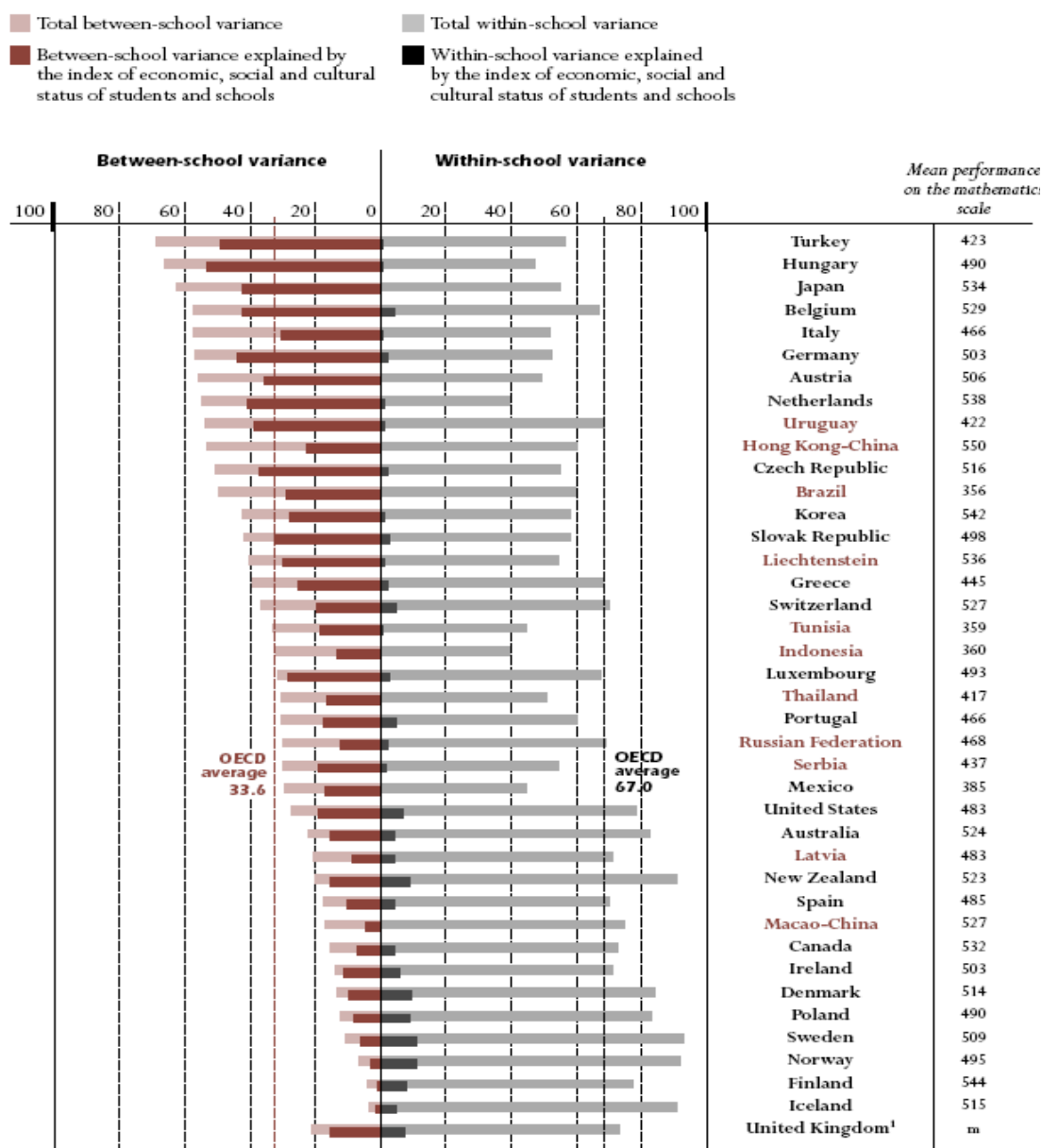


Figure 1. Variation in student performance within and between schools for 38 countries on the PISA Mathematics Literacy Scale (2003) op cit.

Technical Note for Figure1: Variance in PISA is calculated as a proportion of the OECD average. Thus, NZ within-school variance is shown to be over 100%. However, these estimates derive from an artefact scale and are not comparable to actual estimates of the variance attributable to different influences. PISA has not included an analysis of variance attributable at the class/teacher level (see: *Education at a Glance*, OECD 2002, p. 83, for further technical information). Note that Figure 1 is a reproduction of Figure 4.1 of OECD (2003, p. 162).

These analyses indicate that in considering how we organize schooling to better accomplish desired outcomes we should, in New Zealand in particular, be paying attention to the importance of the quality of teaching across all classes within every school. Note in Figure 1 the relative impact of between school and within school influences on student outcomes and how little of the within-school variance is accounted for by economic, cultural and social differences in the students.

There has only been one New Zealand study located that has provided in published form a multi-level analysis of both teacher/class within school variance and between school variance. That is the Second International Mathematics Study. Schereens, Vermeulen and Pelgrum (1989)³⁸ found the NZ between teacher/class variance to be 42% at the Year 9 level and the school effect to be undetectable as a source of variance for these first year secondary students. The lack of school effect may reflect the short time the students had spent in their secondary schooling (less than a year). However, the teacher effect was undeniable. This analysis showed Year 9 student achievement to decline, or show zero gain, over the year in 5 out of 199 classes. The SIMS sub-study showed that many of the high gain classes had very low pre-test scores. Garden, Wagemaker and Moody (1987)³⁹ concluded a strong teacher effect from this data and explained for this New Zealand evidence that 'schooling in mathematics does not necessarily result in the rich getting richer and the poor getting poorer'. (p. 260). That study reflects the NZ context over two decades ago but is entirely consistent with the PISA results for 2000 and 2003 in which New Zealand's within-school variance is very high relative to most other OECD countries.

This overview of influences on variance in student outcomes can direct shared knowledge building to the areas of potentially larger direct influence such as families and teaching influences and to critical mediating influences such as teacher education, leadership and resourcing.

Before addressing the importance of effective teaching for diverse learners, it is important to emphasise the importance afforded to family and community influences in this analysis of impacts on variance in student outcomes. Because of the importance of family and community influences on children, one of the first tranche of first iteration BESs⁴⁰ commissioned was focussed on family and community influences on children's educational outcomes. This BES has been influential in work with other policy agencies. For example, it has strengthened the case for more priority to issues of child poverty in government policy and for a higher priority for children's untreated hearing loss which has been shown to have persisting negative impacts on children's learning, behaviour and outcomes through to adulthood.

There are four key implications that have arisen from our initial best evidence synthesis on family and community influences on outcomes:

- The impact of wider social and economic policies on families & community influences should not be under-estimated.
- The implication of the wider impacts of families and communities is that an evidence-based approach requires strong interface between educational policy and wider social, economic and health policy.
- Notwithstanding the implications above, there is much New Zealand evidence that teacher deficit attributions to families and students can pose a barrier to effective practice, particularly for diverse students.
- An R & D approach to school-family linkages/partnerships in which the school takes agency can have particularly high impacts because they activate both the home and the teaching influences and can forge greater coherence between these and reciprocal benefits for both the school and the families in the interests of children. Ineffective school-home linkages can involve much investment of teacher and parents' time

without benefit for students (Biddulph, Biddulph and Biddulph, 2003). So this is an area where a strong evidence base counts.

Effective School-Home Linkages

In the context of the Iterative Best Evidence Synthesis work in 2003, a school-home partnership intervention that had been developed by reading advisor, Jeanne Biddulph^{41, 42, 43} in her postgraduate studies at the University of Canterbury, was identified as the one school-home intervention that made the most positive difference to the achievement and well-being of low achieving students for the smallest resource input. The approach was also a stand out in that it was carefully theorised using adult learning principles, linked schools and families into a substantial existing resource through the involvement of local librarians, was designed to counter the deficit views of teachers in a supportive way, and enables both family members and children to enjoy the workshops.

The original development of the materials and process for four workshops for parents (and children) was evaluated using a randomised controlled, between and within school trial with both intervention and control group samples. All the children in both samples were reading at least 18 months below their chronological age. An independent evaluation was carried out a year later to monitor longitudinal effects. The effect size for the immediate impact of the workshop intervention (5 hours in all) is .44. This effect size has been independently checked by Professor John Hattie and Dr Ken Rowe, Research Director of the Australian Council for Educational Research. Both researchers consider the impact extraordinary for a 5 hour intervention with parents. The original longitudinal evaluation showed an even more remarkable impact. The progress of the children within the intervention group continued on an upward trajectory enabling them to make on average 2 years 3 months gains in reading age over a 15 month period thereby bringing their reading age close to their chronological age with a continuing upwards trajectory. By contrast, the longitudinal evaluation showed the children in the control group to have lagged even further behind in their achievement a year later.

Because these achievement gains were achieved and demonstrated through a rigorous of experimental design with matched pairs of students, a design that produces results that are inherently generalisable, the findings of the original study have implications for systemic improvement. At my request, the developer of the workshop programme, Jeanne Biddulph, created a 'Workshop Leader's Handbook'⁴⁴ to enable others to trial the workshops.

I wish to illustrate the wider benefits of the intervention in the context of a school in Auckland New Zealand that has an 85% Pasifika population. The context was one where the principal had become understandably disaffected with her experience of previous interventions that had not been particularly helpful to the children, teachers or parents in terms of sustained or long term change.

Two years later, the principal, described her view after trialling the 'Reading Together' Programme:

*We are in the middle of doing the programme again. Cathy and 2 other teachers are doing a "Senior" school group on Tuesday nights and Marian and another Junior school teacher plus our new RTLB are doing "Juniors" on a Wednesday night. Both groups are going very well....up to Workshop two this week. I have some fabulous photos from last night that I will send through to you. I was also talking to (Principal) at (another Auckland school) and they have just run the programme there and were very pleased with the outcome
e-mail from Liz Horgan, 13 September 2006:*

Notable in the commentary is the school's responsiveness to the Pasifika community's request for successive workshops and the integration of the workshop provision into the ongoing work of the school. A theme in the parental evaluations is that the experiences they received in the workshops enabled them to understand the difficulty of the reading tasks their children were undertaking. Parents reported: a shift away from a disciplinary approach to homework, experiencing much more enjoyment in shared reading sessions with their children, improved relationships between themselves and their children in general, delight at their children's progress and less stress for all concerned. The close interaction between the school and the families was valued by both partners.

The principal, Liz Horgan, explains: "I guess what our commitment to the (Reading Together Programme) highlights is that despite the additional time and workload involved we think the programme is well worth it and probably the most effective family/whanau engagement/intervention we have undertaken".

Recently the principal, deputy and assistant principal of the school published an article about their experiences using, adapting and evaluating the programme in the professional journal *Reading Forum* exemplifying a leadership role nationally in contributing to a shared and ever-developing professional knowledge base about what works for all of our children (Horgan, Franich and Wards, 2007)⁴⁵.

The importance of a focus on quality teaching for diverse learners: What we are learning from the series of BESs

Readers can go to the initial BESs in the series, focussed on quality teaching for diverse learners at <http://educationcounts.edcentre.govt.nz/goto/BES>. Three new BESs focussed on effective pedagogy in mathematics/ pāngarau, effective pedagogy in social studies/ social sciences/tikanga-ā-iwi, and outcomes linked evidence about teacher professional learning and development are in train with the first of these now also electronically available.

The findings of the initial BES⁴⁶ indicate the importance of pedagogy that is responsive to the nature and complexity of learning processes, and the ways in which these are socially and culturally co-constructed within tasks and activities in educational practice. Teaching needs to build on students' prior experiences and knowledges and make cultural practices at school and ways of making meaning explicit and linked to other contexts in which children are socialised^{47, 48}. Teaching needs to be responsive to facilitating children's learning processes which requires of teachers knowledge of how children co-construct their knowledge and capabilities and how these need to be scaffolded. The findings illuminate how learning can be optimally facilitated through multiple tasks and task contexts and the importance of time use and task sequencing to support student learning processes⁴⁹.

In answering the conference questions it is timely to emphasise the importance of knowledge that informs the reality of the challenge teachers face in working effectively and simultaneously with groups of diverse learners in education. There is a large body of evidence about teaching practices that promote multiple desired outcomes including social and cognitive outcomes that identifies the importance of the teacher role in training and equipping students to use collaboration, reciprocal helping behaviours and conflict resolution skills. Of particular note is the work led by Elizabeth Cohen (1986)⁵⁰ in training students to work cooperatively using bilingual tasks. Cohen's 'complex instruction' involved specialist, community members, and educator partnerships in task construction, and generated a teaching approach that intensified learning community, enabled children to engage with each other using multiple languages, and reduced teacher stress why enhancing teachers' diagnostic work around student learning. These findings highlight the importance of teacher ability to intensify

the learning supports to students through learning communities. I suggest that readers who are interested follow up the findings about the development of mathematical communities of practice⁵¹, and forthcoming findings about the development of learning communities through social studies teaching⁵² at the website <http://educationcounts.edcentre.govt.nz/goto/BES>

In a recent meta-analysis comparing the effectiveness of different research-based strategies for increasing student achievement, Marzano, Pickering and Pollock (2001) identified the metacognitive⁵³ strategy of identifying similarities and differences as having the most positive impact on learners (effect size of 1.61). The accomplished use of this powerful strategy is well-exemplified in the doctoral research of New Zealand researcher and Kohanga Reo (early childhood) teacher Mere Ngāutauta Skerrett White⁵⁴. The Kaiako (teacher) has provided the children (four and five year-olds) with two different versions of the same story:

- Toko: Ka huna a Hatupatu (*Hatupatu is hiding*).
- Hinepau: He tino roa ana maikuku, he roa ngā mat mati hoki (*Her fingernails are long. Her fingernails are long too. - Hinepau gets book to show picture of Kurungaituku*).
- Awatea: Ēngari he iti noa iho tērā atu Hatupatu (*But that Hatupatu is smaller. Awatea is comparing the image in one book with the image in another book*).
- Hinepau: He nui ake ia. Kāore a ia i peke. (*He is bigger. He is not jumping*).

Skerrett White's account exemplifies how she involved the children in the use of metacognitive reflection in their readings of the different versions of the Hatupatu story. In her thesis she goes on to demonstrate how the embedding of metacognitive strategies in everyday practice in Te Kohanga Reo provided the children with intellectual tools to facilitate their moving in out and out of Te Ao Māori and other worlds. Skerrett White traces the ways in which the children demonstrate ease with their identities as indigenous and as citizens of the world.

Another compelling example of the use of the use of metacognitive strategies in supporting student learning is provided in the action research project of a secondary teacher in New Zealand. Teacher, Christine McNeight designed an action research study⁵⁵ with her Year 12 Pasifika learners who were failing in Classical Studies. She also focussed on the use of a similarities and differences metacognitive strategy. In the course of a year's action research project Christine developed an intervention requiring the Pasifika girls to talk with someone at home or in their wider fono about similarities and differences between what they were learning about Ancient Rome and their own cultural traditions and heritages.

Through a range of small group and whole class report backs the strategy exemplified most of the characteristics of quality teaching, and made the students themselves, and their culture a valued resource in their learning. What really counted is that these students passed their courses at Year 12 (sixth form certificate level) – breaking a pattern of failure in the past at this level – the critical qualifications gate for further participation in education and success in the wider society. For some students the shift in achievement was dramatic moving from a failing grade to an A. This study is significant also because it exemplifies effective teacher-agency in a school-home linkage, even when the teacher does not have the cultural knowledge to make the linkages.

Effective Professional Learning

If teaching is a major systemic influence on student outcomes then the conditions, supports and provision of opportunities for teacher learning are critical. Early findings from the *Teacher Professional Learning and Development BES* (Timperley, Wilson, Barrar & Fung, forthcoming 2007) are compelling. Although difficult to locate in a massive literature on professional development unrelated to outcomes for students, a number of studies across different curriculum areas achieved impacts considered to be large in terms of effect sizes⁵⁶. The Teacher Professional Learning and Development BES includes an analysis not only of what facilitates the kind of teacher learning that made marked improvements in student outcomes, but also, analyses of interventions that led to student achievement deteriorating from what it had been before intervention. Such findings will be critical in policy development.

The findings highlight the importance of external and challenging expertise with strong pedagogical content knowledge to facilitate and support changes in practice; although poor expertise even from the research community can result in negative impacts on student outcomes. This finding is a challenge for policy makers and teacher educators alike to consider the kind of infrastructure, research and development funding and synergies needed to ensure that schools have access to the expertise needed to facilitate the kind of professional learning opportunities that mediate effective practice for diverse learners.

The findings indicate the importance of engaging teachers' theories and challenging discourses that are a barrier to improvements for some students. The findings highlight the importance of sufficient time for extended opportunities for teachers to learn and of the importance of using time effectively – particularly using diagnostic information about students' understandings in a teacher's own context.

In those studies that had the biggest impacts on student outcomes teachers had opportunities to participate in professional learning communities. However, in studies of ineffective professional development, teacher communities were also in place and much time was spent and/or funded, sometimes over several years, to no effect for students. In the most effective school-based studies leadership was actively involved in supporting a learning culture. Whether or not teachers volunteered was not related to impact of professional development. What motivated teachers were the marked positive shifts they saw in the students they were teaching. The BES shows remarkable improvements to be possible, for previously underserved students, when effective professional development and support conditions are available. We have brought in two teacher advisors from New Zealand's school support services to help in the final year of BES development as BES writers. These advisors will be supported to work with their teacher educator colleagues to explore ways of using the findings to strengthen expertise and practice systemically.

The teacher professional learning and development BES findings tell us that school leadership is important in creating the conditions for quality teaching. Those studies where the biggest positive impacts occurred for students found that leaders:

- organised a supportive learning environment
- were learners along with their teachers
- provided alternative visions, targets and goals for student outcomes and monitored them; and/or
- developed the leadership of others.

The Educational Leadership BES in development is the most challenging of the BESs because of the complexity of the ways in which leadership mediates improved outcomes for diverse learners. This BES is due to go for international formative quality assurance in July 2007. The

focus is on principals but not only on principals. Educational leadership (and this BES) involves policy leadership, other forms of national leadership (for example, the NZ Education Review Office's role) and the leadership of senior teachers, deputy and associate principals, teachers and even students.

The Leadership BES being developed by a team of researchers at the University of Auckland (Professor Viviane Robinson, Dr Margie Hohepa and Dr Claire Lloyd) in consultation with advisors and sector stakeholder representatives is exploring what it is about leadership that makes a difference for students and teachers. Although it is early days in the development of the educational leadership BES, and this is the most methodologically challenging BES to date, there are emergent findings of practices that have been found to be linked to stronger achievement or better social outcomes for students.

In findings to date are about nine leadership dimensions that appear to be particularly productive in making a difference for students. One of the emerging analyses for the Leadership best evidence synthesis has been reported by Robinson (2007)⁵⁷ at the International Confederation of Principals Conference. See Table 1 below:

Table 1: Leadership Practices Derived from Studies of Effects of Leadership on Students

Leadership Practice	Meaning of Dimension
1. Establishing Goals and Expectations	Includes the setting, communicating and monitoring of learning goals, standards and expectations, and the involvement of staff and others in the process so that there is clarity and consensus about goals.
2. Strategic Resourcing	Involves aligning resource selection and allocation to priority teaching goals. Includes provision of appropriate expertise through staff recruitment
3. Planning, Coordinating and Evaluating Teaching and the Curriculum	Direct involvement in the support and evaluation of teaching through regular classroom visits and provision of formative and summative feedback to teachers. Direct oversight of curriculum through school-wide coordination across classes and year levels and alignment to school goals.
4. Promoting and Participating in Teacher Learning and Development	Leadership that not only promotes but directly participates with teachers in formal or informal professional learning
5. Ensuring an Orderly and Supportive Environment	Protecting time for teaching and learning by reducing external pressures and interruptions and establishing an orderly and supportive environment both inside and outside classrooms

Robinson (2007) notes that:

The list of dimensions is unusual in that it does not include the typical distinction between leading tasks and leading people or relationships. This distinction has been

eschewed here because close examination of the leadership indicators used in these studies shows that relationship skills are embedded in every dimension (p. 5).

Although each of the practices shown in Table 1 has been found to be linked to stronger outcomes for students, all can be done in ways that are highly effective, not effective, or even counterproductive. The real work of the BES will be to unpack, as far as we are able, actual examples of leadership/management practices that illuminate the findings in more depth and in ways that are genuinely useful for principals, and others taking leadership roles in education.

The early findings indicate that the characteristics of leaders that positively impact on student outcomes include: acting as change agents, being flexible, showing strong situational awareness, and being knowledgeable about the pedagogical strategies required to meet school goals.

Of particular import for this paper is that the leadership activities that showed the most powerful impact on outcomes for learners were those whereby the leader participated in or promoted teacher professional learning.

The role of R & D and Collaborative Knowledge Building in Systemic Learning

The single most compelling finding across the BESs is that effective R-&-D has enabled educational practice to make a much bigger positive difference for diverse learners. In the light of Coburn's (2003)⁵⁸ analysis of the evidence of a history of failed educational reform, the magnitude of positive impact, the responsiveness, the sector ownership gained and the futures orientation of the most effective R-&-D are compelling. Often such R-&-D has gone through many iterations to create the kind of educational development that can work powerfully for diverse learners. As an initial step, through funding educational researchers and the collaborative and iterative processes necessary to undertake first iteration BES developments, BES is seeking to build the capability of the national research community to transform relevant but fragmented research knowledge into a more useful tool for both policy makers and practitioners. This means drawing upon previous local and international investment in education and transforming it into a learning tool for all in the education system. While we privilege what we can learn from research and development in local contexts we are also greatly indebted to the wider international for what we are learning from their educational research and development.

BES is also seeking to steer the research community towards a greater focus on informing educational development through R-&-D. Getting policy and research support for this strategy is critical so that BES is not just a way to pull together what can be learned from past research.

Each completed BES iteration is an invitation to researchers and educators to engage with the gaps in our knowledge base, the areas of need and the areas of most potential to contribute more deliberately to a cumulative agenda to strengthen educational practice. Currently we are working towards a co-construction, with colleagues across policy, research, teacher education and practice, of a working theory of action about how we can optimise dissemination and use of the findings to enable the work to make a difference for our diverse learners. The vision is that the Iterative BES Programme will act as a catalyst to build an integrated outcomes-focussed research-and-development culture in education that enables systemic capability building, transformation and sustainable renewal. We don't have time to keep rediscovering the wheel in education. It is time for a new learning agenda across policy, research and practice that makes a bigger difference for our children.

-
- 1 Luke, A. & Hogan, D. (2006). Steering educational research in national contexts: the Singapore model. In D. Coulby, J. Ozga, T. Popkewitz & T. Seddon, Eds., *World Yearbook of Education: Educational Research and Policy: Steering the knowledge-based economy*. Edinburgh: Edinburgh University Press.
- 2 Bossert, S. (1979). *Tasks and social relationships in classrooms: A study of instructional organisation and its consequences*. London: Cambridge University Press
- 3 Doyle, W. (1983). Academic work. *Review of Educational Research*, 53, 159-199.
- 4 Timperley, H., Wilson, A., Barrar, H., & Fung, I. (forthcoming). *Teacher professional learning and development: Best evidence synthesis iteration*. Wellington: Ministry of Education. <http://educationcounts.edcentre.govt.nz/goto/BES>
- 5 Biddulph, F., Biddulph, J. & Biddulph, C. (2003). *The complexity of community and family influences on children's achievement in New Zealand: Best Evidence Synthesis*. Wellington, New Zealand: Ministry of Education. <http://educationcounts.edcentre.govt.nz/goto/BES>
- 6 Education Review Office. (2003). *Maori Students in Mainstream Schools*. Evaluation Report. Wellington, New Zealand.
- 7 Irvine, J. J., & York, D.E. (1995). Learning styles and culturally diverse students: A literature review. In J. Banks, & C. McGee (Eds.). *Handbook of Research on Multicultural Education*. MacMillan Publishing. (p. 487).
- 8 Higgins, J. (2001). *Developing numeracy: Understanding place value*. Report to the Ministry of Education. Wellington: Ministry of Education.
- 9 The term 'Pasifika' is used in this paper to denote the diverse children from Pacific Nations who are New Zealanders or are being educated in the New Zealand education system.
- 10 Cardelle-Elawar, M. (1995). Effects of metacognitive instruction on low achievers in mathematics problems. *Teaching and Teacher Education*, 11(1), 81-95
- 11 Marzano, R., Pickering, D., & Pollock, J. (2001). *Classroom instruction that works: Research-based strategies for increasing student achievement*. Virginia: Association for Supervision and Curriculum Development.
- 12 Cohen, E. (1994). Restructuring the classroom: Conditions for productive small groups. *Review of Educational Research*, 64 (1), 1-35.
- 13 Stein, M.K. (2001). Teaching and learning mathematics: How instruction can foster the knowing and understanding of number. In J. Brophy (2001). (Ed). Subject-specific instructional methods and activities. *Advances in Research on Teaching*. Vol. 8. New York: Elsevier.
- 14 OECD. (2001) *Knowledge and Skills for Life: First results from the OECD Programme for International Student Assessment (PISA) 2000*. Paris, France: OECD Publications.
- 15 OECD (2004). *Learning for tomorrow's world: First results from PISA 2003*. Paris, France: OECD Publications.
- 16 Benton, R. (1986). Now fades the glimmering: Research in classrooms in New Zealand. *SET Research Information for Teachers*, 2(12).
- 17 Carkeek, L., Davies, L., & Irwin, K. (1994). *What happens to Māori girls at school? Final Report*. Wellington, New Zealand: Ministry of Education.
- 18 Clay, M. (1985). *Engaging with the school system: A study of interactions in New Zealand classrooms*. *New Zealand Journal of Educational Studies*, 20(1), 20-38.
- 19 Millward, P., Neal, R., Kofoed, W., Parr, J., Kuin Lai, M., & Robinson, V. (2001). Schools learning journeys: Evaluating a literacy intervention at Dawson Road Primary School. *SET Research Information for Teachers*, 2, p. 39-42.
- 20 St George, A. (1983). Teacher expectations and perceptions of Polynesian and Pakeha pupils and the relationship to classroom behaviour and school achievement. *British Journal of Educational Psychology*, 53(1), 48-59.
- 21 Thomas, D. (1984). (Ed.). *Patterns of social behaviour: New Zealand and the South Pacific*. (Psychology Research Series, No. 17). Hamilton: University of Waikato.
- 22 Alton-Lee, A. (2003). *Quality teaching for diverse students in schooling*. Wellington, NZ: Ministry of Education. <http://educationcounts.edcentre.govt.nz/goto/BES>
- 23 Britzman, D. P. (1995). Is there a queer pedagogy? Or, stop reading straight. *Educational Theory*, 45(2), 151-165.
- 24 Town, S. J. H. (1998). Is it safe to come out yet? The impact of secondary schooling on the positive identity of ten young gay men, or that's a queer way to behave. Unpublished doctoral dissertation. Victoria University: Wellington.
- 25 Pawson, R. (2006). Digging for nuggets: How 'bad' research can yield 'good' evidence. *International Journal of Social Research Methodology*, 9(2), 127-142.
- 26 Haig, B. (2004). *Methodological Considerations for Generating Iterative Best Evidence Syntheses*. Paper prepared for the Iterative Best Evidence Synthesis Programme. Department of Psychology: University of Canterbury.
- 27 Biddulph, F., Biddulph, J. & Biddulph, C. (2003). (ibid)

- 28 Robinson, V., Hohepa, M., & Lloyd, C. (forthcoming, 2007). *Educational leadership (Schooling): Best evidence synthesis iteration*. Wellington: Ministry of Education.
- 29 Ginsburg, M., & Gorostiaga, J. (2003). Dialogue about educational research, policy, and practice: To what extent is it possible and who should be involved? In M. Ginsburg and J. Gorostiaga (Eds.). *Limitations and possibilities of dialogue among researchers, policy makers and practitioners: International perspectives on the field of education*. (pp.1-36) New York: Falmer.
- 30 Wright, A., & de Joux, V. (2003). *Case studies of innovation in the Public Service*. Wellington: New Zealand Treasury.
- 31 Walter, I., Nutley, S., and Davies, H. (2005). What works to promote evidence-based practice? A cross-sector review. *Evidence and Policy*, 1(3), 335-363.
- 32 Walter, I., Nutley, S., and Davies, H. (2005). *What works to promote evidence-based practice? A cross-sector review*. *Evidence and Policy*, 1(3), 335-363.
- 33 Nechyba, T McEwan, P., & Older-Aguilar, D. (1999). *The Impact of Family and Community Resources on Student Outcomes*. Strategic Research Initiative Literature Review. Wellington: Ministry of Education.
34<http://www.minedu.govt.nz/index.cfm?layout=document&documentid=8679&indexid=1004&indexparentid=1072>
- 35 Rowe, K., Hill, P. W., & Holmes-Smith, P. (1994, January). *The Victorian quality schools project: A report on the first stage of a longitudinal study of school and teacher-effectiveness*. Symposium paper presented at the 7th International Congress for School Effectiveness and Improvement, Melbourne.
- 36 Rowe, K. (2004). *The importance of teaching: Ensuring better schooling by building teacher capacities that maximise the quality of teaching and learning provision – implications of findings from emerging international and Australian-evidence-based research*. Australian Council for Educational Research (ACER). Supporting paper to invited address at the Making Better Schools Conference: A Summit Conference on the Performance, Management and Funding of Australian Schools sponsored by the Melbourne Institute of Applied Economic and Social Research in association with The Australian and the Faculty of Education at the University of Melbourne 26-27 August 2004.
- 37 Hill, P., & Rowe, K. (1996). Multilevel modelling in school effectiveness research. *School Effectiveness and School Improvement*, 7(1), 1-34.
- 38 Scheerens, J, Vermeulen, C., & Pelgrum, W.J. (1989). Generalizability of instructional and school effectiveness indicators across nations. *International Journal of Educational Research*, 13(7), 789-799.
- 39 Garden, R., Wagemaker, H., & Mooney, C. (1987). Explaining mathematics achievement. In A. Binns, D. Carpenter, R. Elliffe, J. Irving, & N. McBride. (Eds.). *Mathematics achievement in New Zealand secondary schools*. Wellington: New Zealand Department of Education.
- 40 Biddulph, F., Biddulph, J. & Biddulph, C. (2003). The complexity of community and family influences on children's achievement in New Zealand: best evidence synthesis iteration. Wellington: Ministry of Education. www.minedu.govt.nz/goto/bestevidencesynthesis
- 41 Biddulph L. J. (1983). *A group programme to train parents of children with reading difficulties to tutor their children at home*. Unpublished MA research report, Education Department, University of Canterbury.
- 42 Biddulph, L. J., & Tuck, B. (1983). *Assisting parents to help their children with reading at home*. Paper presented to the annual NZARE conference. Wellington.
- 43 Biddulph, L. J. (1993, May). *Teacher-parent partnership to support children's reading development*. Paper presented to the New Zealand Reading Association Annual Conference, Christchurch.
44 www.readingtogether.net.nz
- 45 Horgan, L., Franich, C., & Wards, M. (2007). Reading together workshop – St Josephs Otahuhu. 22(1), 35-40.
- 46 Alton-Lee, A. (2003). *Quality teaching for diverse students in schooling: best evidence synthesis iteration*. Wellington: Ministry of Education.
- 47 Brice Heath, S. (1982). What no bedtime story means: Synthesis skills at home and school. *Language and Society*, 11, 49-76.
- 48 Nuthall, G. (1999). Learning how to learn: The evolution of students' minds through the social processes and culture of the classroom. *International Journal of Educational Research*, 31, 1-256.
- 49 Alton-Lee, A. (2003). Quality pedagogy for diverse students in schooling: Best evidence synthesis. Wellington: Ministry of Education.
- 50 Cohen, E. (1986). *Designing groupwork*. New York: Teachers College Press.
- 51 Anthony, G., & Walshaw, M. (2007). *Effective Pedagogy in Mathematics/ Pangarau. Best evidence synthesis iteration. Prepublication copy for teacher educators*. Wellington: Ministry of Education. <http://educationcounts.edcentre.govt.nz/goto/BES>
- 52 Aitken, G., & Sinnema, C. (forthcoming). *Effective pedagogy in social studies, social sciences and Tikanga-a-iwi. Best evidence synthesis iteration*. Wellington: Ministry of Education.

-
- 53 Metacognitive strategies are strategies that require students to think about their own thinking and to be strategic in the use of thinking skills to support their own learning.
- 54 Skerrett White, M.N. (2003). *Kia Mate Rā Anō a Tama-nui-te-rā: Reversing language shift in Kohanga Reo*. Unpublished doctoral thesis. Waikato: Te Whare Wānanga o Waikato.
- 55 McNeight, C. (1998). “*Wow! These sorts of things are similar to our culture!*” *Becoming culturally inclusive within the senior secondary school curriculum*. Unpublished graduate research report,. Wellington: Department of Teacher Education, Victoria University.
- 56 Marzano, R., Pickering, D., & Pollock, J. (2001). *Classroom instruction that works: Research-based strategies for increasing student achievement*. Alexandria, Virginia, USA. : Association for Supervision and Curriculum Development.
- 57 Robinson, V. (2007, April). *How schools make a difference to their students*. Keynote address to International Confederation of Principals, Auckland. New Zealand.
- 58 Coburn, C. (2003). Rethinking scale: Moving beyond numbers to deep and lasting change. *Educational Researcher*, 32(6), 3-12.