

**Quality Teaching For Diverse Learners:
How an Evidence-Based Approach Can Help.**

Adrienne Alton-Lee

New Zealand Ministry of Education

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I would like to acknowledge the people of the Culin nations, the traditional owners of this land.
Tena koutou katoa. Warm Pacific greetings to everyone.

Thank you particularly to the New Zealand Educational Institute, the New Zealand Post Primary Teachers Association, the Australian Curriculum Studies Association and the Ministry of Education for the opportunity to engage with you in this exciting forum to create a shared agenda for action.

I would like to start by taking you on a flying visit into some schools.

Christine Rietveld¹ is a New Zealand researcher who has spent hundreds of hours observing the experiences of students with Down Syndrome in schools. Consider first the experiences of six-year-old Mark who has Down Syndrome:

[Mark is in the playground standing and looking around. James comes up to Mark.]

James: Hello, hello, hello. *[James gets very close to Mark's face.]*

[Mark backs off a little.]

Mark: No

[James goes off to a nearby friend in the adventure playground.]

James: Looks at that boy there. He said 'No'. Come and have a look. He goes like this with his tongue.

[James imitates putting his tongue in and out of his mouth. James pokes his tongue out at Mark. Mark walks off a little and watches children playing on the adventure playground. James returns with another two boys as well as the first boy.]

Boys: Hello, hello, hello.

[The boys say hello to him over and over and laugh at him. One of the boys throws his lunch paper at Mark after screwing it up first. Mark looks at the ground and shakes his head. Peter squeals at him and pats his cheeks. The others make growling noises at him then laugh.

The boys leave for a minute and then return and continue saying 'Hello' to Mark over and over. Mark pokes his tongue out at the boys.]

[a teacher-aide walks by.]

[Interrupted narrative – What should the teacher aide do?]

¹ Rietveld, C.M. (2002). *The transition to school for children with Down Syndrome: a challenge to regular education.* Unpublished doctoral dissertation. University of Canterbury, Christchurch.

TA: I hope you boys are being nice.
James: We're just saying 'Hello' to him ...

[The teacher-aide introduces Mark to the boys and suggests that they play with Mark. They ask Mark if he wants to swing. Mark does not respond. The boys leave and Mark stands on the path looking around.]

TA: Come on. *[The teacher-aide is holding out her hand to Mark.]*
We'll find William. *[William is another child with a disability the teacher-aide is there to support.]*

TA: Let's go to the adventure playground.
[Mark follows the teacher aide.]

In another school, Ian, who also has Down Syndrome, is engaged with peers in building a block structure when Alan makes a complaint about him to the teacher.

Alan: Ian! No, Ian.
Brent: *[To Alan]* Tell the teacher.
[Alan tells the teacher]
The teacher arrives at the scene and ...
[Interrupted narrative – What should the teacher do?]

[The teacher arrives at the scene and looks.]

Teacher: *[To Alan]*. If there's a problem, tell Ian what it is. Tell Ian if there's too many cars, it'll *[the structure they have built]* break. Tell him where he can put the cars and blocks.

[Alan and Ian sit down on the mat. Ian picks up a car.]

Alan: *[To Ian]*. In there. In there. *[Alan shows Ian where to put the car.]*

Ian: No. *[Ian says 'No' but does put the car where Alan showed him and drives it around. Brent, Alan and Kate also drive their cars around each on their own part of the block structure.]*

[The children continue to drive their cars around for 2 minutes.]

These examples provide a compelling contrast between educational environments and the consequences for children. Christine Rietveld uses a theoretical tool to help teachers build upon these contrasting examples to improve their own practice. She contrasts the 'personal tragedy' approach to students with disabilities with an educative 'social constructivist' approach to shaping the learning environment. The personal tragedy perspective of the kindly teacher aide compensates for Mark's exclusion from his peer group with age-inappropriate handholding – a compensatory not an educative response – a pattern across the practice of many educators observed in Christine's research. The social constructivist approach of Ian's teacher benefits both the peers, who have to learn to problem solve and to communicate, and Ian.

The research on peer helping shows evidence of greater achievement benefit accruing to the child who helps than to the peer who is helped if children are taught to provide elaborated explanations. This is a good example of the kinds of surprise findings outcomes-linked evidence has provided (Webb, 1991)².

Like so many studies from the 'Quality Teaching for Diverse Students in Schooling BES'^{3, 4} the research focussing on Ian's teacher exemplifies the ways in which effective pedagogy simultaneously

² Webb, N.M. (1991). Task-related verbal interaction and mathematics learning in small groups. *Journal for Research in Mathematics Education*, 22, 366-89.

³ Alton-Lee, A. (2003). *Quality Teaching for Diverse Students in Schooling: Best Evidence Synthesis*. Wellington: Ministry of Education

⁴ www.minedu.govt.nz/goto/bestevidencesynthesis

addresses a range of outcomes for diverse students at the same time – achievement, social skills, cultural identity and potential ‘behaviour problems’. The responses to Mark and Ian demonstrate also how ‘quality teaching for diverse students’ is not about adding more but about transforming business-as-usual. Everybody benefits, including the teacher, because her actions in strengthening the peer learning culture, lessen her stress.

There are many such studies identified in the Quality Teaching for Diverse Students in Schooling: BES – and our forthcoming series of BESs across the curriculum will update and expand the richness of this resource. In a recent meta-analysis comparing the effectiveness of different research-based strategies for increasing student achievement, Marzano, Pickering and Pollock (2001) identified the metacognitive⁵ 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 White⁶. 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. –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*).

Teacher, Christine McNeight’s action research study⁷ with her Year 12 Pasifika learners who were failing in Classical Studies, 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 cultural traditions.

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. This study is significant also because it exemplifies effective teacher-agency in a school-home linkage.

The best evidence synthesis reports New Zealand teacher Lena Klenner’s adaptation of Australian teacher Susan Swan’s ‘Thinking Books’ pedagogy⁸ – an approach developed in Sue’s postgraduate work with internationally renowned Australian researcher, Richard White, to promote deep learning across the curriculum.

Students receive individual Thinking Books in which they record their thinking about what they have learnt, how their new learning links to their prior knowledge and experience, and any questions they have about their new learning. The teacher engages in a written dialogue through the Thinking books to promote the children’s learning. Lena Klenner’s use of the Thinking Books is illustrated below.

⁵ 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.

⁶ 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.

⁷ 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.

⁸ Swan, S., & White, R. (1994). *The thinking books*. London: Falmer Press.

Lena Klenner drew on the children's thinking and experiences in her subsequent lessons using the hospital as a context for learning. Five-year-old Monique's question about the reason for her friend, Erangi's, x-ray was the key question for a class discussion about x-rays in which the children concluded that an x-ray 'takes a picture of your bones'.

Figure 1. Monique's Thinking Book – Question about an X-ray

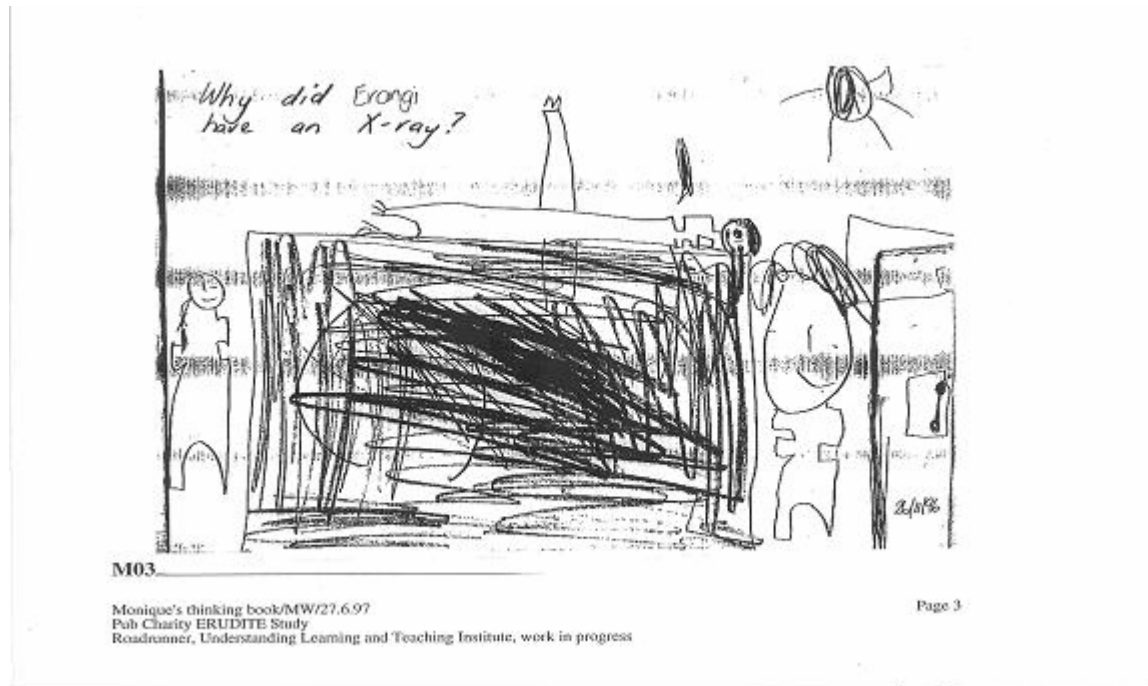
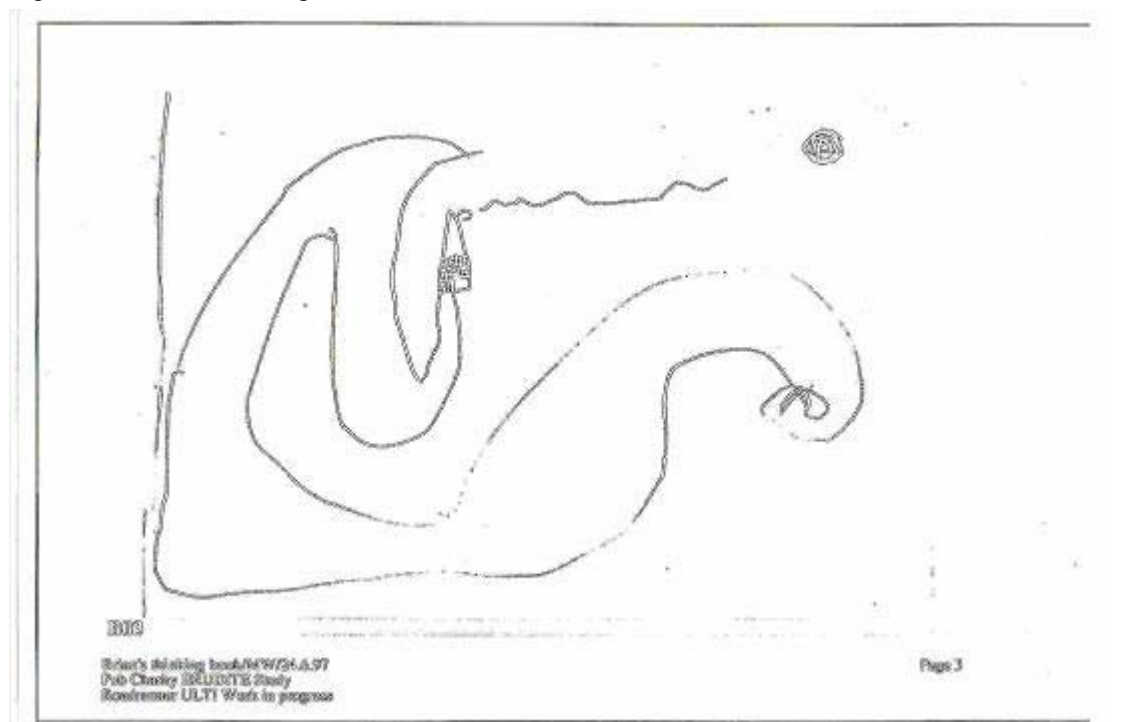


Figure 2. Brian's Thinking Book –The Road to Nowhere



The teacher was also able to get an insight into Brian's prior experience about hospitals. Brian explained that he had never been to hospital even though he wanted to go when his Mum had a new baby. The image shows a road from his home to an unknown destination. Holly's Thinking Book exemplifies the critical importance of teachers attending to how what the children are learning in class links to their home and family experiences.

Figure 3a. Holly's Thinking Book – Visiting Mum in Hospital

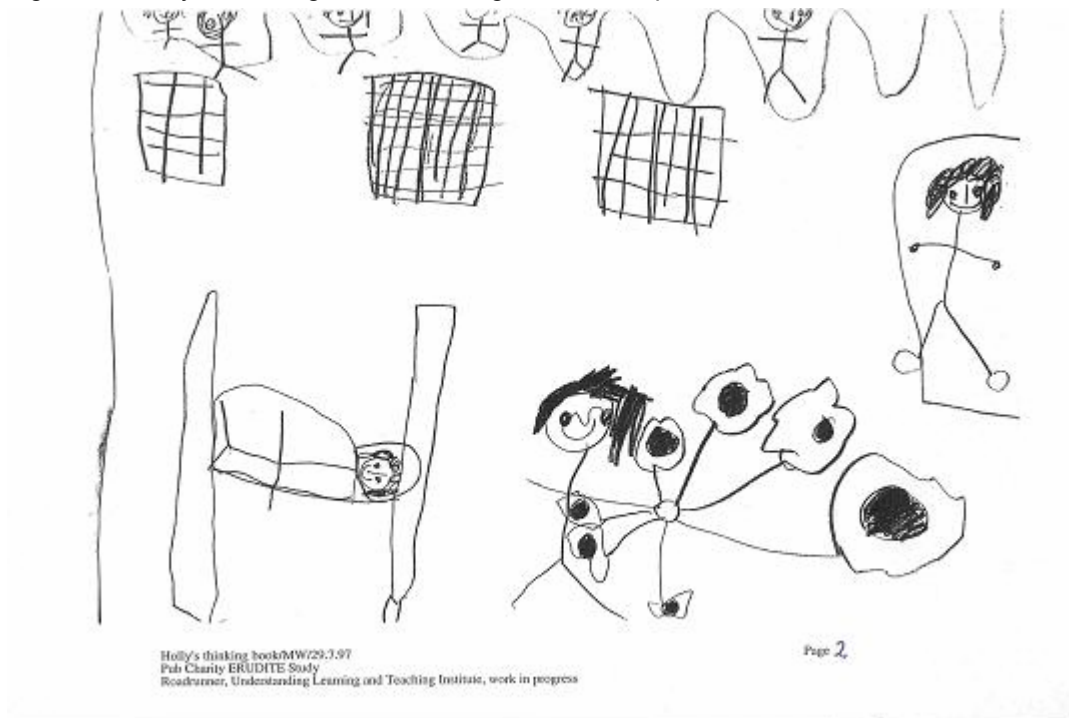
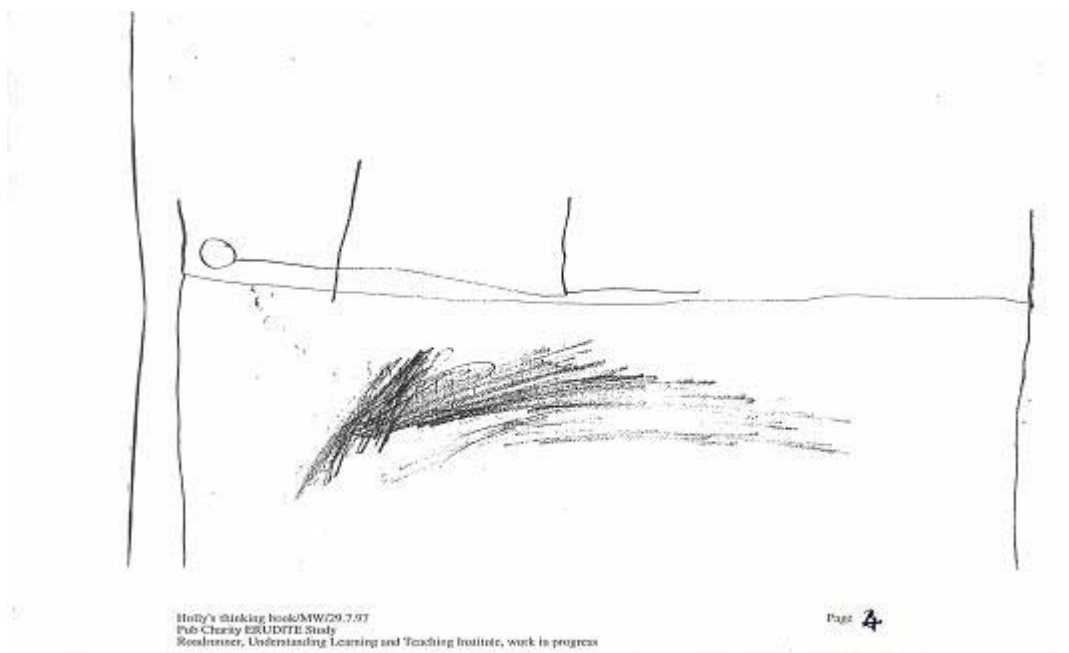


Figure 3b. Holly's Thinking Book – Holly's Mother Died in Hospital



Teacher, Lena Klenner, was of course aware of Holly's mother's death and had previously talked with Holly's father about the social studies unit using hospital as a context for learning. She used care in ensuring that Holly felt safe, for example, arranging to have Holly sitting directly beside her when the children were in a discussion circle on the mat. Holly's Thinking Book provided a venue for the teacher to engage in an ongoing dialogue with Holly about her experiences of hospital and what she wanted to share about the loss of her mother regulated by Holly herself.

In the Thinking Book excerpts above I have introduced examples from three of the children only in this new entrant class. The discussion of Lena Klenner's use of the Thinking Books in the *Quality*

Teaching for Diverse Students: BES did not focus on these three learners. Rather, the BES alludes to Lena's simultaneous focus on Fa'afetai, a very new immigrant to the class, on Huhana, a Māori child who took a leadership role in co-constructing classroom lessons with the teacher, and on Zack, a older student with spina bifida whose expertise Lena drew upon to assist the children in their learning. These were only a few of the students in the larger new-entrant class. I have used this example to highlight both the extraordinary complexity and challenge of effectively teaching a group of students simultaneously, and the value of evidence-based approaches to support this work.

The Thinking Books pedagogical approach:

- supports student sense making linked to their real life experiences,
- scaffolds metacognitive strategies and self-regulation,
- allows the teacher a diagnostic window into diverse learner minds,
- provides a learning focus for teacher-student and student-student interactions, and
- engages a whole class enabling the teacher to attend effectively, rapidly and responsively to individual and whole class needs.

The excerpts I have pulled from the BES can seem deceptively simple if we do not attend to the role of teacher research and development in creating those stories. In policy discourse it is very easy to use the research without recognising its role in educational development or in change processes.

- Christine Rietveld's work represents years of doctoral and post-doctoral work by a skilled educator who is also a researcher.
- Mere Ngāutauta Skerrett White's doctoral work represents a formidable research and development enterprise. As both Kaiako and researcher working a language revitalisation context she provides ground-breaking insights into quality teaching.
- Christine McNeight's work arose out of a year-long action research project focused on a self-selected educational problem, that she undertook as part of a Masters of Education course while on a year's research leave from teaching – returning to her class to try out the action research study.
- Sue Swan's story is also one of a teacher using her post-graduate studies to carry out research and development to solve the problem she saw of shallow thinking in her class. Lena Klenner is a NZ teacher who undertook to upgrade her initial teacher qualification where she used action research to build upon and develop the use of Swan's Thinking Books in her own room with younger learners.

The examples above represent the fruits of tertiary postgraduate research and development in education. But too often such post-graduate professional R & D remains the private work of teachers stored only in a course assignment or library-stored thesis. This is of particular concern because the BESs indicate how critical context and culture are to effective educational practice, making our local R & D our greatest resource.

I see the shift towards evidence-based teaching offering teachers a gift, arising out of their own professional practice, that can inform the challenging task of working effectively with high and low achievers at the same time with benefits for learners and for teachers. But as indicated in Appendix A achieving such shifts at a systemic level would require profound changes.

Building a Shared Knowledge Base

The project of bringing together this kind of outcomes-linked evidence builds upon the impressive and complex professional practice of teachers. The purpose is to develop a shared, constantly

updated knowledge base to inform dialogue and improve the work of teacher educators, practitioners, researchers and policy development.

The task of bringing this work together in a useful way is necessarily a collaborative task between practitioners, researchers, teacher educators and policy advisers. The New Zealand Ministry of Education is working in partnership with the teacher unions, educational leaders and educational researcher/teacher educators in managing the development of a series of such BESs. Through the assistance of three national advisory groups we have developed a high level of agreement for national *Guidelines for Generating a Best Evidence Synthesis Iteration*⁹ and we use a partnership approach to the management of the contracts that greatly strengthens BES development and supports wider ownership.

The approach is not about prescribing practice that has worked in the past. It draws out the principles and characteristics underpinning effective practice in recognition of the importance of context and the complexity and creativity of any teaching endeavour.

Underpinning the approach is a systematic policy agenda to highlight the rich resource that R & D offers and to strengthen capability across the teacher education and educational research sector overall to be more helpful to teachers and educational leaders.

Beyond the Rhetoric – An Evidence-Based Approach to Educational Change

The BESs bring much valuable knowledge together and provide a map for those locating particularly useful studies relevant to their teaching contexts, but they are still only reports.

Despite the request by both New Zealand teacher unions that initially teachers are afforded time just to read the BESs, such reports can easily succumb to a ‘death by bullet point’ run through the executive summary, approach. In a world where getting a simple communication strategy seems like the obvious next step it is timely to reflect on the cautions in the literature about when research is useful – for example, that teachers need a more, rather than a less, complex language of practice.

There are many metaphors in current use that theorise processes of educational system change. For example, the spreading innovation like an ‘epidemic’¹⁰ metaphor. There is much talk of learning communities and networking but much evidence of both that does not result in changes for learners. In the examples I have given I have exemplified a little of both the exciting potential of evidence-based pedagogical approaches and the depth and complexity of quality teaching for diverse learners. The notion that educational change is just about distributing information and that small scale innovations in teaching practice ‘can catch on quickly and easily’¹¹ like an illness, do not do justice to the complexity of professional practice in education.

There is a prevalent discourse amongst teacher educators, researchers and policy makers about the need for teachers to be systematically reflective about their practice. It is noteworthy that in the huge body of writing on initial teacher education, teacher professional development, and innovation there is so little reflection upon evidence of links to student outcomes.

If magical notions of systemic change pervade, then the enormous opportunity offered by the current focus on quality teaching will be a lost opportunity. It would be a lost opportunity if, in being evidence-based about what works in classrooms, we were not also evidence-based about the outcomes-linked

⁹ Alton-Lee, A. (2003). *Guidelines for Generating a Best Evidence Synthesis Iteration*. Wellington: Ministry of Education. www.minedu.govt.nz/goto/bestevidencesynthesis

¹⁰ Hargreaves, D. (2003). *Education Epidemic: Transforming secondary schools through innovation networks*. London: Demos.

¹¹ Excerpted from the Demos catalogue abstract of Hargreave’s *Education Epidemic* (see reference op.cit.)

conditions, and supports, that enable teacher professional learning. I contend that the hard work of systematic reflection on the conditions that support sustainable educational improvement and development is critical to a successful agenda for action.

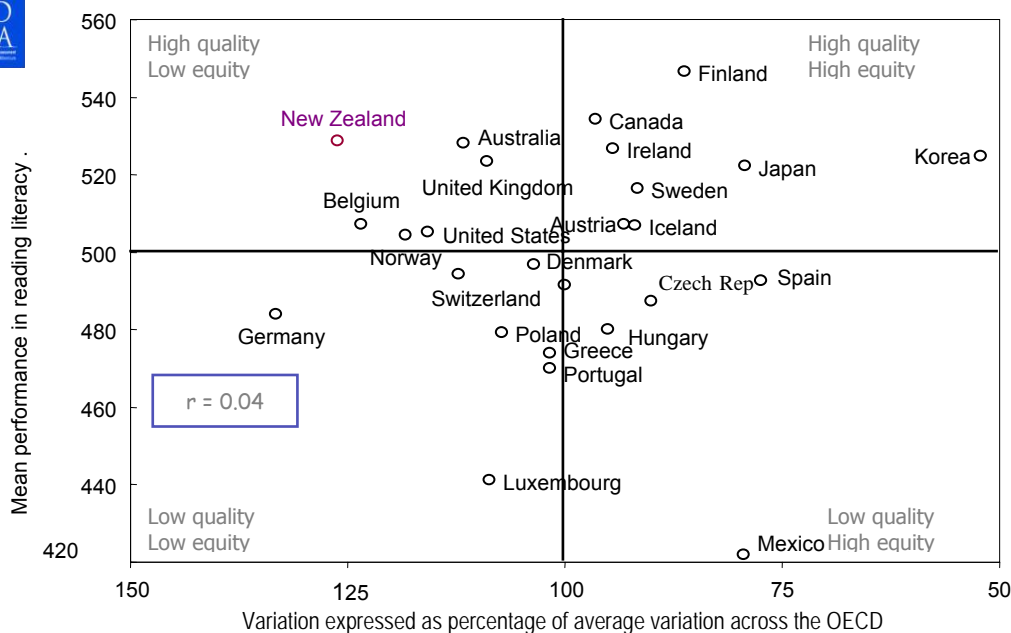
At present in New Zealand we have in progress a best evidence synthesis development focussed on teacher professional learning and development. The early work of BES writer, Helen Timperley on the teacher professional learning and development BES is helping us to understand the importance of cognitive dissonance in teacher professional learning, and the importance of teachers systematically using student data to improve their teaching when applying new professional learning in their own teaching contexts. I have a deep sense of the potential of this work – and have been delighted to hear such terms as ‘awesome’ from teacher union representative, Liz Patara, who is helping us to manage the contract, when she considered the second milestone report on this BES development. The evidence about the conditions that support the kind of professional learning that makes a difference for diverse learners will be a foundational tool in creating and guiding an agenda for action.

We are also commissioning a new BES focussed on the outcomes-linked evidence around educational leadership to help to understand the role of educational leadership nationally and locally in creating the conditions that support quality teaching for diverse learners. The methodological challenges of this best evidence synthesis work are formidable, but the potential gains through being better informed about what can really make a difference will be at least as great as those exemplified in the outcomes-linked quality teaching research.

The Need for a Step-Up



Figure 4. Overall Performance - New Zealand's High Average and Large Variance in PISA 2000 Reading literacy



Source: OECD (2001)¹² Knowledge and skills for life, Appendix B1, Table 2.3a, p.253, Table 2.4, p.257

¹² OECD (2001). *Knowledge and skills for life: First results from PISA 2000. Programme for International Student Assessment*. Paris: OECD. www.SourceOECD.org.

The results from PISA focussed on the reading literacy of 15-year-olds demonstrate the wide disparities in New Zealand student achievement. Although New Zealand has a high average achievement by international standards, and although with the new assessment system in senior secondary we are seeing a strengthening of senior secondary attainment, there are too many of our students leaving schools with no or inadequate qualifications to transition successfully into the new demands of a knowledge society.

Contributing to the low equity results for New Zealand are the marked differences in group averages by socio-economic status of family, indigeneity, language and ethnicity, and the less marked differences by gender. While these differences are apparent in the PISA results, the best evidence syntheses show such large effect sizes for effective teaching of students with disabilities in the international research that it appears many of these students could benefit most from evidence-based development.

From a policy perspective, the wide variance in New Zealand learner achievement creates an imperative to do better for all of our learners. Further, there is a double-imperative from a medium term strategy perspective. Demographic projections¹³ indicate that New Zealand's education system is not only serving an increasingly diverse student population but also serving communities whose ethnicities are shifting over time. Whereas Pakeha learners have comprised the majority of our student population, within the next three decades it is likely that Māori and Pasifika will comprise the majority of learners in early childhood education and schooling. Many of these students have been served least well by the education system.

Culture and difference in classrooms does not fall into easy equity categories. Students' identities are increasingly reflecting multiple ethnic and cultural heritages. Umbrella terms such as 'Pasifika' and 'Asian' fail to reflect extraordinary diversity of heritage, recency of immigration, language status, cultural background and so on. For teachers, diversity is a given because the overwhelming challenge is to work simultaneously and effectively with groups of diverse learners – learners with complex individual identities influenced by intersections of gender, ethnicity, socio-economic status of family and dis/ability. Further, student identities are fluid and changing from day-to-day. What we do know is that the education system has far to go in being responsive to this diversity. Further, unless a new agenda for quality teaching has responsiveness to diversity at its heart, then patterned failure is likely to persist.

The use of the term 'diversity' rejects the notion of a 'normal' group and 'other' or minority groups of children and constitutes diversity and difference as central to educational practice. That means all learners, including students who are Pakeha or of European, heritage, Māori, Pasifika, Asian and learners of many ethnicities and heritages, including high and low achievers, including boys and girls, and so on. This point is important because the word 'diversity' can be inappropriately co-opted as a way of constructing an 'us' and 'other' distinction around an assumed 'norm'.

This attention to the needs of diverse/all learners at the same time would represent a shift in framework thinking. A useful way to consider the implications of this in policy terms is to contrast it with previous approaches. Two have been sketched here.

- The rhetoric is on 'all learners' but the needs of many learners who bring differences from a predominant 'norm' are less visible and even marginalised¹⁴. This kind of approach would result in relatively stable disparities persisting over time.

¹³ *Ethnic Populations Projections*, www.stats.govt.nz, Department of Statistics, Wellington, New Zealand.

¹⁴ A sign of this discourse operating is when a cultural norm is such a mainstream given that the term 'ethnic' is used in ways that do not include its application to British/ European/Pakeha cultures.

- The 'democratic' process can result in an intensive focus for a period of time on a particular group who have an effective lobbying impact. This kind of approach can provide important intensification of resources and knowledge for particular groups of learners but is at risk of not permeating mainstream practice, and/or can even create a backlash effect. Of most concern is that this approach can lead to a kind of bandwagon approach that fails to address the teacher's challenge to manage the learning of all the students at the same time. While in the policy context it is feasible to focus on one group of learners, a teacher needs to be able to do his or her best for every parent's child in the class grouping which means doing the best possible job for diverse learners at the same time. Further, as has been demonstrated, the evidence base is a critical resource for the challenge because it shows teaching that is responsive to student diversity can have very positive impacts on low and high achievers at the same time.

The Iterative BES Programme has developed a *Responsiveness to Diversity* framework (that includes English and Māori medium settings) to ensure that our approach to knowledge building addresses the fundamental need to enhance capability to be effective with diverse learners – at the same time. The term 'diversity' itself has been used as a tool to get a shift in thinking about group and individual identity. Interrogation of what the term 'diversity' means for quality teaching is useful of itself because it generates dialogue around our key policy challenge.

We need to address the wide disparities, to strengthen the range of social and academic outcomes the wider community is seeking, and to move beyond a model of schooling where students such as Mark suffer repeated experiences of cruel belittlement, bullying and exclusion.

There is limited social outcome data available, but the suicide indicator for NZ gives particular concern for male youth and, in particular, young Māori men. We do not yet have high quality and systematic national data on bullying. However, in the Third International Mathematics and Science Study (94/95)¹⁵ New Zealand reported the second highest percentage of students who feared being hurt by other students, out of 23 participating countries¹⁶ and the trend persisted through to the 1998 data. In that same study Australian principals reported higher incidences of dealing with intimidation than principals in many other countries. The research indicates that, as for Mark, differences between students are at issue and bullying targets students by differences such as disability, sexuality, gender, ethnicity and recency of migration.

There is a large evidence base of a wide range of strategies such as co-operative group work incorporating metacognitive strategy requirements that pre-empt bullying and potentially promote very positive academic and social outcomes for diverse students at the same time. But there is a warning – the research literature in New Zealand and elsewhere provides many examples of ineffective use of co-operative group work where social discussion displaces rather than supports academic engagement.

The effects sizes for evidence-based approaches to the use of co-operative learning can be very high (0.62 to 0.75)¹⁷. Such benefits occur when teachers use effective practices such as:

- careful integration of teacher-directed, cooperative group and individual tasks,

¹⁵ Chamberlain, G. with Chamberlain, M., & Walker, M. (2001) *Trends in Year 5 Students' Mathematics and Science Achievement. Results from a New Zealand study based on the Third International Mathematics and Science Study*. Ministry of Education, Wellington.

¹⁶ Martin, M.O., Mullis, I.V.S, Gonzales, E.J., Smith, T.A., & Kelly, D.L. (1999). *School contexts for learning and instruction in IEA's Third International Mathematics and Science Study*. Boston College: TIMSS International Study Center

¹⁷ Lipsey, M.W., & Wilson, D. (1993). The efficacy of psychological, educational, and behavioral treatment: Confirmation from meta-analysis. *American Psychologist*, 48 (12), 1181-1209.

- skilled task design – (in the Complex Instruction model developed by Elizabeth Cohen¹⁸ and colleagues at Stanford University the tasks are also all bilingual as a matter of course),
- integrating mechanisms to ensure individual student accountability,
- structured processes to teach students skills to engage in effective strategies to provide elaborated help and manage conflicting ideas, and
- structured and systematic reflection on the part of students.

The *Quality teaching for diverse students in schooling BES* makes the case that the great value of the evidence-base is that it documents pedagogical approaches (and the characteristics underpinning these) that enable teachers to effectively meet the needs of diverse learners – at the same time (while reducing teacher stress in the long-term). This finding is counter-intuitive for a craft-practice approach to teaching but it is not just an idiosyncratic conclusion of the BES. The finding that what works to improve the achievement of advantaged students is what works for disadvantaged or 'at-risk' students was influential in the preparation of the US Educational Research Service's *Handbook of Research on Improving Student Achievement* (Cawelti, 1999)¹⁹. This *Handbook* has been adopted for use by UNESCO. Lewis and Norwich (2000)²⁰ carried out a systematic review of research relating to the question of whether students with special needs learn best with specific pedagogies: *Mapping a pedagogy for learning difficulties*. They concluded that the evidence for particular pedagogies for students with special educational needs is weak. Rather, they find their review of evidence to support 'common pedagogy' for diverse learners with attention to continua of teaching approaches, and adaptations for high density teaching for students with special needs.

The best evidence syntheses reveal that teachers have great agency in influencing not only achievement but also peer cultures through the ways in which they design and structure tasks and learning environments. This kind of evidence is contributing to the intense political focus on quality teaching. Multi-level studies of school and class/teaching impacts have shown differences between teachers/cases to account for 42% of the variance in Year 9 mathematics outcomes in available New Zealand²¹ evidence. In Australia, Peter Hill's²² internationally leading work has shown the impacts of teaching to be even greater accounting for up to 60% of the variance in achievement in some curriculum areas at the senior secondary level.

An evidence-based approach does however call for parallel attention to the evidence about the largest impacts, not only on the differences between learners but also the shared accomplishments, accounted for by families and communities²³. For educational policy makers this means a compelling government inter-agency agenda to address child poverty, to address child health issues, such as the inordinate human cost of temporary undiagnosed and untreated hearing loss at critical learning periods, to address access to quality early childhood education, to address language and sub-text policies guiding public television and so on.

¹⁸ Cohen, E. (1994). Restructuring the classroom: Conditions for productive small groups. *Review of Educational Research*, 64 (1), 1-35.

¹⁹ Cawelti, G. (1999) (2nd edition). *Handbook of research on improving student achievement*. Arlington, VA: Educational Research Service. (This is the handbook selected for use by UNESCO).

²⁰ Lewis, A., & Norwich, B. (2000). *Mapping a pedagogy for learning difficulties*. Report submitted to the British Educational Research Association as part of the National Events Programme 1999. Universities of Birmingham and Exeter.

²¹ 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.

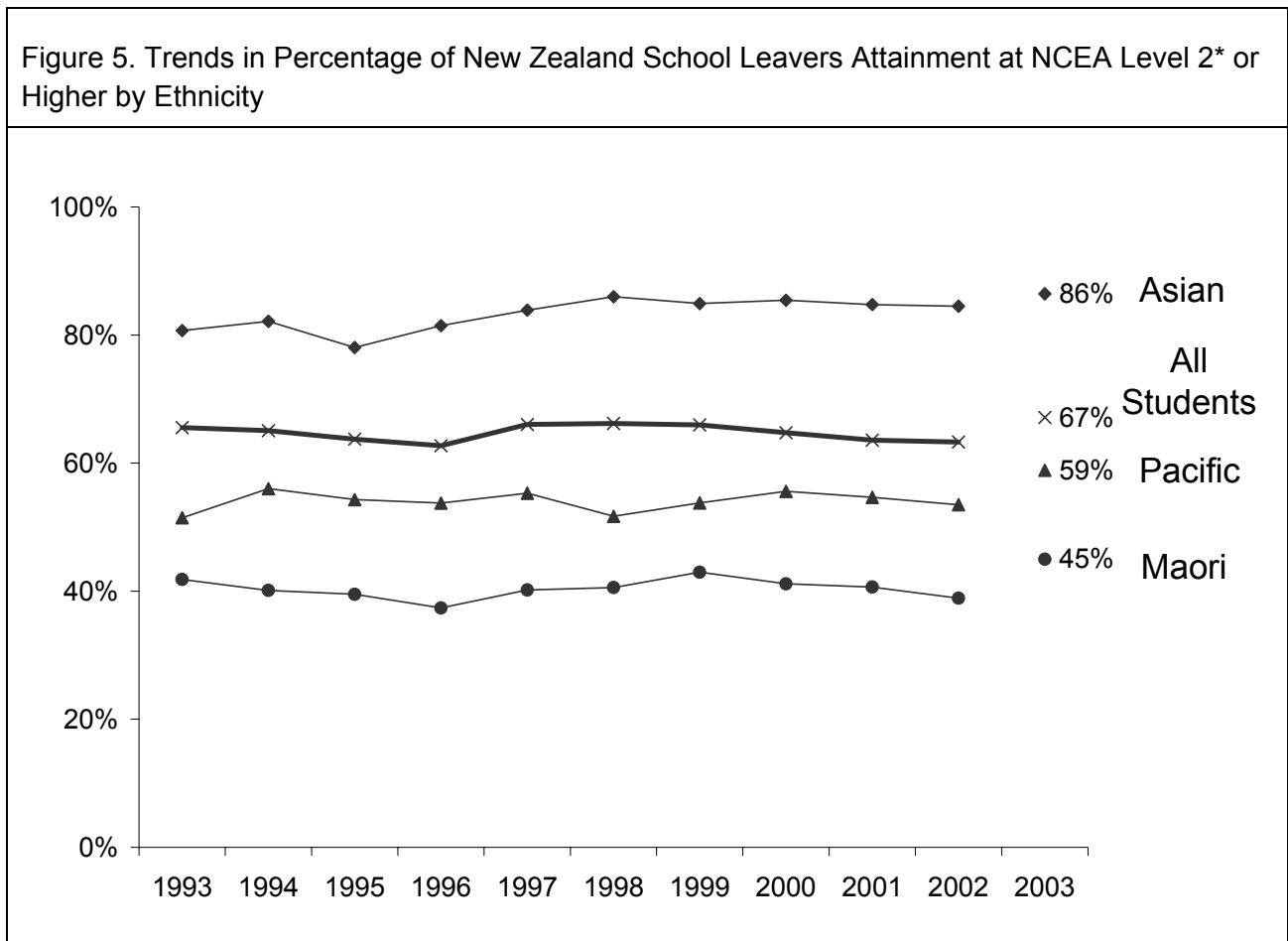
²² Hill, P., Rowe, K., Holmes-Smith, P., & Russell, V.J. (1996). *The Victorian Quality Schools Project: A study of school and teacher effectiveness*. Report to the Australian Research Council. Centre for Applied Educational Research, Faculty of Education, The University of Melbourne.

²³ 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: Ministry of Education.

The evidence about family and community influences signals another critical partnership in creating an agenda for action – the partnership between educators and families. The evidence-based work of Joyce Epstein (at the Johns Hopkins University Center on School, Family and Community Partnerships²⁴) is leading in this area. This research and development programme highlights the critical agency of teachers in effective school-home partnerships that work for busy teachers and busy parents. I see that as a new big step in the agenda for action and a big research and development challenge. In our best evidence syntheses, we have highlighted the extraordinary gains for a range of outcomes at home and at school from an experimental study²⁵ of a four workshop programme offered by schools for the parents and caregivers of struggling readers. In a context where there have been many initiatives that have not impacted positively upon children’s outcomes, cost-effective evidence-based strategies that have the potential to be so transformative are a treasure for educators²⁶ and parents.

Indigeneity and Education System Under-Performance

For New Zealand education, we have a particular policy challenge in the underperformance of the education system for Māori learners (see Figure 5).



⁴ Includes Sixth Form Certificate, at least 14 credits at National Certificate Level 2, National Certificate Level 2, ACE or overseas awards at Year 13 level at 1-13 credits at Level 3 or above.

²⁴ See the National Network of Partnership Schools (<http://www.csos.jhu.edu/p2000>).

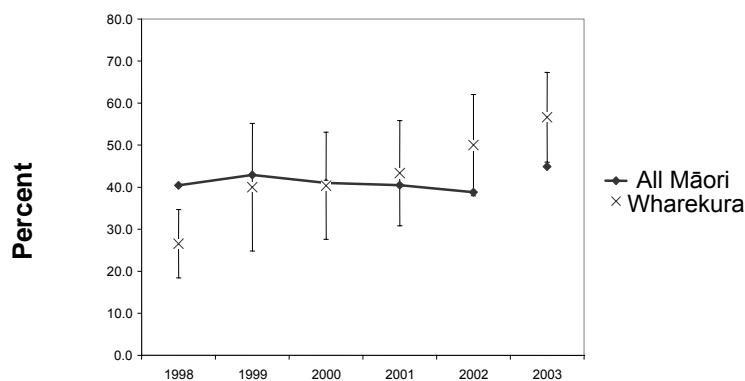
²⁵ Biddulph L. J. (1983). *A group programme to train parents of children with reading difficulties to tutor their children at home*. Unpublished MA research report, Education Department, University of Canterbury. (See contact information below).

²⁶ A revised 2004 workshop facilitator’s package for this Reading Together Programme can be found at www.readingtogether.net.nz

Year 12 qualifications are the gateway to transitioning from school into further study or work within the knowledge society. Despite the step-up for all students in 2003 associated with the new National Certificate of Educational Achievement, fewer than half of Māori students are attaining at a level that breaks through the knowledge society threshold level within New Zealand schooling. The particular failure of schooling in this regard has been highlighted in figures showing Māori learners are participating at much higher rates than students of other ethnicity in the tertiary sector – particularly the new Māori Wananga.

By contrast with Māori students in English medium schooling in 2003, students in Māori Medium education have achieved significantly more highly at senior secondary levels across curriculum areas (see Figure 6).

Figure 6: Percentage of Wharekura School Leavers with High Attainment in comparison to all Māori Leavers with Confidence Intervals: Excluding School #1917 – Year 12



The provision of Kaupapa Māori education secondary schools (Wharekura) is a very recent development. The first Kohanga Reo (Māori early childhood education centre) was set up as a result of iwi and community action in 1982. Figure 6 illustrates the pattern of higher performance in Māori medium emerging as the initial potential for cohorts to come through continuous Māori medium in Kohanga Reo (early childhood education), Kura Kaupapa Māori (primary schools) and Wharekura (secondary schools) emerges. This information is conservative because it excludes a very high performing outlier wharekura.

Our best evidence syntheses provide much insight into reasons for the patterns of Māori failure in English medium settings. Research over at least two decades has revealed that mainstream teachers in New Zealand hold inappropriately low expectations for, make inappropriate assessments of, and/or provide lower levels of praise for, Māori students in English medium New Zealand classrooms (Benton, 1986²⁷; Carkeek, Davies & Irwin, 1994²⁸; Clay, 1985²⁹; Millward, Neal, Kofoed, Parr, Kuin Lai & Robinson, 2001³⁰; St George, 1983³¹; Thomas, 1984³²). Professor Courtney Cazden

²⁷ Benton, R. (1986). Now fades the glimmering: Research in classrooms in New Zealand. *SET Research Information for Teachers*, 2(12).

²⁸ Carkeek, L., Davies, L., & Irwin, K. (1994). *What happens to Māori girls at school? Final Report*. Wellington: Ministry of Education.

²⁹ 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.

³⁰ 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.

(1990)³³ of Harvard University, carried out an in-service intervention with New Zealand junior class teachers designed to counter the pattern of differential treatment of Māori in classroom lessons, but found the pattern resistant to effective intervention. When considered as a whole the range of evidence across the BESs about differential and deleterious educational provision for Māori learners in English medium schools is deeply concerning. Many of these findings indicate markedly ineffective teaching practice that is harmful to academic achievement, social outcomes and student cultural identity.

I want to return to the classroom for a moment to demonstrate how big a challenge sits behind this evidence. In this case, the setting is social studies, the students are 11 and 12-year-olds, and the teacher has designed a curriculum unit focussed on New York city to enhance tolerance and understanding of cultural differences. If one took the view that it is curriculum rather than teaching that makes the difference in schools, then all would seem fine.

The teacher is talking about the settlement of New York city by Europeans. Broadcast microphones worn by the students reveal that Joe who is Pakeha/European heritage responds to the teacher in his private comments to Ricky, his Māori schoolmate.

Teacher: Because White people ...

Joe (talking to Ricky): Honkies.

Ricky (talking to Joe): Shut up!

Teacher: Europeans, we were ...

Joe (talking to Ricky): Nigger!

Teacher: Watch this way please, Ricky! – were often wanting to get things ...

Joe (talking to Ricky): Black man! Samoan! (Alton-Lee, Nuthall & Patrick, 1993, p.77)³⁴

Joe went on to kick Ricky, who was reprimanded and later removed from class lessons because of an orchestrated complaint to the teacher from the Pakeha boys that he was disturbing their work. From the teacher's viewpoint it was always the Māori student who was causing the trouble. What was evident in the transcripts, however, was that the teacher's inadvertent exclusion of Ricky from the 'we' of the classroom community 'we, Europeans' was the trigger for the verbal and physical abuse that Ricky experienced from his classmates. In later interviews, Ricky, who was astonished that the researcher understood what he had experienced, explained that in the end hitting back and hitting harder became his only solution.

John Patrick, the teacher, who co-published this research explained that seeing the transcripts later was:

Heart-rending because I would have liked to have thought that I was tuned in to what was happening in the class...I just didn't know... Prior to doing this research I would've said "yes, you know, I'm fully aware of these things. It comes as a real blow to find that in actual fact you're not necessarily doing things that are line with what you believe. I believe that (the outcomes) are extremely positive because they've increased my level of awareness. They've altered my action...It's altered the things that I think are important

³¹ St. George, A. (1983). Teacher expectations and perceptions of Polynesian and Pakeha pupils and the relation of classroom behaviour and school achievement. *British Journal of Educational Psychology*, 53, 48-59.

³² Thomas, D. (1984). (Ed.). *Patterns of social behaviour: New Zealand and the South Pacific. (Psychology Research Series, No. 17)*. Hamilton: University of Waikato.

³³ Cazden, C. (1990). Differential treatment in New Zealand: Reflections on research in minority education. *Teaching and Teacher Education*, 6(4), 291-303.

³⁴ Alton-Lee, A. G., & Nuthall, G. A., with Patrick, J. (Spring, 1993). Reframing classroom research: A lesson from the private world of children. *Harvard Educational Review*, 63(1), 50-84.

when I'm devising a curriculum...It's altered the way I treat other people too.(Alton-Lee, Nuthall & Patrick, 1993, p. 80).

The research connecting teaching to learning reveals that deeply kind, well-meaning, experienced teachers teach in ways that bring about outcomes contrary to their goals. The challenge this poses for quality teaching is formidable. Given that the issue of educating Māori is arguably New Zealand's starkest area of education system failure, the development of effective teacher professional learning opportunities that transform school experiences and outcomes for diverse Māori learners is a critical area of need.

A current New Zealand research and development initiative around teacher professional learning that is making a marked difference for Māori students within mainstream secondary education is Te Kotahitanga³⁵ led by Professor Russell Bishop. This project is founded on a Kaupapa Māori philosophy that seeks to promote the self-determination of students. All the processes in the project seek to exemplify the Kaupapa Māori education philosophy.

Through different phases of the project the researchers have worked initially with self-selecting teachers in a small number of schools, but the latest phase of the project has involved 12 schools, and there are now 600 teachers who have participated in Te Kotahitanga. In this project the researchers gathered initial data about teachers' perspectives on the reasons for Māori student absenteeism, disruptive behaviour and failure. The researchers then interviewed Years 9 and 10 Māori secondary students about their perspectives on their education and made these student narratives available to their teachers.

The students' stories acted (and continue to act) as a powerful catalyst for challenging teachers' deficit views and motivating teachers to relate differently to the students. Teachers were then invited to attend a three day marae-based hui (meeting) to deepen their understanding of the discrepancies between the students' perceptions and their own views in a safe and non-confrontational setting. Through confronting the discrepancies the teachers are enabled to move away from the view that it is the students who are the problem. The programme highlights the ways in which blaming the students promotes an inability to act in teachers, and offers alternative discourses so that teachers can get a sense of how things might be different. Teachers often comment on their experience of this process as a liberating approach.

³⁵ This project comprises three phases each of which has an associated report to the Ministry of Education. Phase One - Bishop, R., Berryman, M., Tiakiwai, S., & Richardson, C (2003) *Te Kotahitanga: the experiences of Year 9 and 10 Māori students in mainstream classrooms*.

Phase Two – Bishop, R., Berryman, M., Powell, A., & Teddy, L. (2005). *Te Kotahitanga: Improving the educational achievement of Māori students in mainstream education. Phase 2: Towards a whole school approach*.

Phase Three – Bishop, R., & Berryman, M. (2005). *Te Kotahitanga: Improving the Educational Achievement of Māori students in mainstream schools. Progress report and planning document*. It should be noted that this report is not the final one for phase 3.

While the phase one report introduces Kaupapa Māori theory that underpins Te Kotahitanga, a more comprehensive exposition of this theory is provided in the following publications:

Bishop, R. *Freeing ourselves from neo-colonial domination in research: A Kaupapa Māori approach to creating knowledge*. Handbook of Qualitative Research, third edition (forthcoming).

Shields, C.M., Bishop, R., Mazawi, A.E. (2005). *Pathologizing Practices: The impact of deficit thinking on education*. New York: Peter Lang Publishing.

Importantly, the hui also provided a context for introducing an effective teaching profile – linked to the students’ stories. A series of structured classroom observations, incorporating feedback and discussion, and a cyclical process of strengthening teaching practice followed. In this approach there is particular emphasis on transforming the power relationships between the teachers and the students. This changed relationship leads to an intensified focus on student self-regulation and the development of peer learning community.

Teachers choose whether to opt into the programme. For teachers who have dropped out of the programme after the marae-based hui, the professional learning opportunity was insufficient to make a difference for students. In situations where the teachers participated in both the marae-based hui and the follow-up classroom visits, significant changes for the students have occurred. The gains achieved have depended on the sustained engagement of teachers and level of support provided for the teachers. Unexplained absences, stand-downs and suspensions have decreased and positive gains in student achievement have occurred.

Innovative pedagogical developments have occurred, such as a change in the assessment system in one mathematics classroom to afford students credit not only for successfully learning concepts, but also for demonstrating effective teaching of a concept to another student. Students who have been absent are at a premium with other students, and everyone can catch up if classes are missed through illness – a critical issue in mathematics where new learning is so dependent upon prior domain-specific knowledge. This approach can reap the benefits the outcomes-linked evidence makes apparent for both those who help, and those who are helped. The intensified peer learning community will also lower the demands on the teacher of student absenteeism – again with a lessening of teacher stress and student failure.

Te Kotahitanga has not achieved the transformations sought with all the teacher participants but where it has been successful the results have been substantial and life changing for many of the learners. The forthcoming analyses of the performance of a sample of the Te Kotahitanga students across schools on the NZCER Essential Skills Assessments will further strengthen the evidence about these achievement lifts. From an iterative evidence-based perspective, what we can learn from what did not work will be as important as what we can learn from what did work in this ground-breaking programme for New Zealand education.

In March 2005, Emeritus professor Christine Sleeter, currently Vice President of the American Educational Research Association’s Division K (Teaching and Teacher Education), after a two week visit to the Te Kotahitanga project team and a group of participating schools, commented:

“I see more potential to make significant and sustained improvements in schools for students from historically underserved communities in this project than in any other project that I have had contact with.”³⁶

To achieve systemic improvement – the kind that will impact on every child – we need a step up in our thinking about indigeneity and responsiveness to diversity, a step up in effective professional learning and a step up in systemic integration of research and development activity in education. Such a ‘step-up’ would entail attending carefully to the evidence about system change and conditions of sustainability in our own context.

New Zealand has one national initiative focussed on teacher professional learning for which there is evidence of increased student achievement: the Numeracy Development Project³⁷/Te Poutama Tau.

³⁶ Personal communication with Professor Russell Bishop, Project Director, March 28, 2005.

³⁷ Young-Loveridge, J. (2005 forthcoming). *Patterns of Performance and Progress on the Numeracy Projects 2004*. Wellington: Ministry of Education.

This project provides intensive professional development for teachers focussed on the nature of student learning of number. The teachers work with diagnostic interviews to uncover student thinking and systematic pre- and post-teaching assessment data. The approach supports students in developing metacognitive strategies and in intensifying student learning community. In recent feedback to the team co-ordinating the development of a new Schooling Strategy, New Zealand teachers mentioned this project most frequently as an example of valued professional learning. In a report back to the Ministry of Education's Group Māori, Māori medium teachers also identified Te Poutama Tau as the professional learning opportunity they valued most.

I have selected the Numeracy Development Project for focus, not just because it is one area where atypically for NZ culture, we acknowledge that we learned from Australians – although we have grown the baby considerably within our own context.

Conservative early analyses³⁸ of the 2004 data for 70,000 NZ students in Years 1 to 8 (English and Māori medium) showed progress to a higher stage was greater for all ethnic groups than in 2003. Although the average effect size advantage for addition/subtraction was only modest (0.19- the same size as for the UK Numeracy initiative) the average effect sizes for multiplication and proportion/ratio were more than double these (0.40 and 0.43) reflecting the emphasis on more advanced mental strategies. The analysis of the data for the 70,000 students has been carried out by Dr Jenny Young-Loveridge, is in press, and will shortly be coming out in a compendium of research and evaluation arising out of the Numeracy Development Project/Te Poutama Tau being published by the New Zealand Ministry of Education.

The results interestingly show higher gains for students in lower decile³⁹ than mid-decile schools.

Most notably, for the first time in the four years since the exploratory study in 2000, we have seen a narrowing of the gaps between Pakeha/European and Māori students and between Pakeha European and Pasifika students. Early interrogation of the evaluation data suggests particularly high results for Māori and Pasifika students where the Numeracy Development Project has intersected with other intensive opportunities for evidence-based professional learning in schools.

Despite the intensive demands on teachers of the initial professional learning, demand from schools for access to this professional development has been pressing. Interestingly, reduction in teacher stress has been an understated recurring theme in the post-PD evaluation feedback of teachers in New Zealand's Numeracy Project since the first *Exploratory Study in 2000*.

Teacher: I was just wondering about questioning skills...the facilitator was asking basic questions, he built up the confidence first, and then the questions got a bit hard...it was just interesting listening to him talking to the children, the same question, but it was the way he said it...I thought gosh if I could do the things that he can do, it would make it so much easier in my room...

Christiansen, I. (2004). *An evaluation of the Poutama Tau*. Wellington: Ministry of Education.

Young-Loveridge, J. (2004). *Patterns of Performance and Progress on the Numeracy Projects 2001-2003*. Wellington: Ministry of Education.

Christiansen, I. (2003). *An evaluation of the Poutama Tau*. Wellington: Ministry of Education.

Thomas, G. and Tagg, (2003) *An Evaluation of the Early Numeracy Project 2002*. Wellington: Ministry of Education.

Thomas, G. and Tagg, (2004) *An Evaluation of the Early Numeracy Project 2003*. Wellington: Ministry of Education.

Higgins, J. (2004) *An Evaluation of the Advanced Numeracy Project 2003*. Wellington: Ministry of Education.

Higgins, J. (2003) *An Evaluation of the Advanced Numeracy Project 2002*. Wellington: Ministry of Education.

³⁸ Young-Loveridge, J. (2005 forthcoming). *Patterns of Performance and Progress on the Numeracy Projects 2004*. Wellington: Ministry of Education.

³⁹ An index to describe the socio-economic catchment of schools. Lower indicates a lower socio-economic family catchment mix.

The Numeracy Development Project has been forged through a collaborative partnership between Ministry of Education staff, the mathematics research and teacher education community, and the professional development facilitators and teachers, creating a strong and effective national learning community. There are now available 14 evaluation reports that have been used iteratively in the development of this project and a compendium of the evaluations and related research by the mathematics community is being prepared. Critical work in the project is identifying differences in the practices of the professional development facilitators that relate to differences in the achievement outcomes of the students of teachers who receive the professional development.

We need to systematically reflect on the ways in which this agenda for action has been developed amongst the practitioners, researchers and policy makers in order to inform, and use such valuable information (both about the successes and the shortcomings) to further develop our thinking about systemic educational improvement. That there appear to be particularly large shifts for previously low achieving groups of learners when there are synergies between the Numeracy PD and other intensive school-based professional learning opportunities need particular attention from policy makers. That like the 'Thinking Books' and 'Te Kotahitanga' the Numeracy Development Project/Te Poutama Tau has at its centre a strategy to enable teachers to gain access the thinking and experiences of students is also worthy of reflection – and reminds us that any successful endeavour focussed on quality teaching must have students' thinking, learning and experiences at its centre.

Over the past 15 years in New Zealand, there have been remarkably few shifts showing national system improvements in achievement outcomes and almost none I can see that would be unexplained by major research and development.

Implicit in an evidence-based approach to development is the key role of R & D in system-wide development. I suggest that we need to rethink both issues of quantum and integration of R & D in taking up the policy challenge around effective teaching.

The Singaporean Centre for Research in Pedagogy and Practice provides an exciting example of the kind of quantum leap that can be made to strengthen R & D for a whole education system. From a policy perspective it is useful to reflect on a wider perspective on the issues of quantum.

A 2003 OECD report⁴⁰ identified the relatively low proportion of funding afforded to R& D in education generally and the challenges this raises for knowledge societies.

A rough estimate of the level of educational R & D as a percentage of total expenditure on education is on average less than 0.3% in six countries for which data are available. This is a very small figure when education is compared with other knowledge sectors, for example, the health sector where between 5-10% of the total health expenditure in public and private sectors are directed to R & D.' (p. 11).

The OECD Report includes an assessment of educational research in New Zealand and estimated educational research funding to be even lower than that for other OECD countries at between 0.17-0.20%:

At the same time New Zealand invests far less in research and development of any kind than other developed countries, and has far lower R & D personnel per million population than Australia or Western European countries. New Zealand is successful educationally, but is, by R & D standards, not becoming a knowledge economy. (p. 89).

⁴⁰ OECD (2003). *Knowledge management: New challenges for educational research*. Paris: OECD.

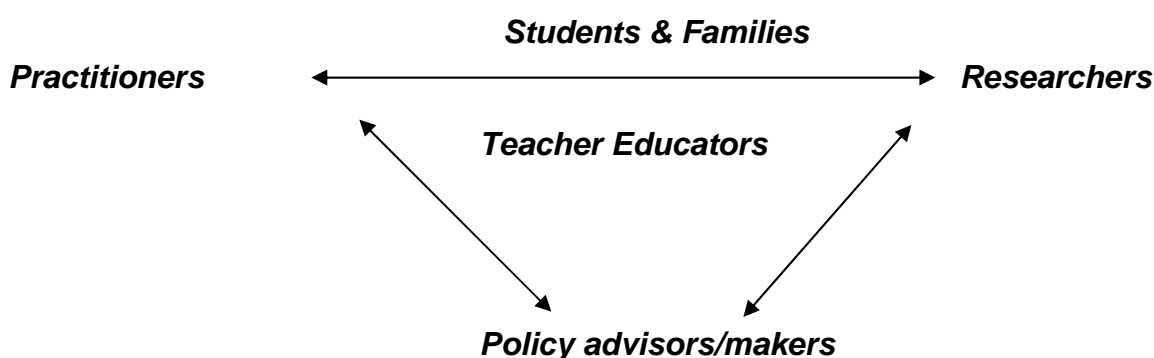
Since the OECD Review the New Zealand Teaching & Learning Research Initiative has been established providing \$2 million of government funding per year and requiring R & D partnerships between researchers and practitioners. This initiative has provided a knowledge building funding resource that is building the research base across a number of curricular areas and areas of researcher (and sector) concern. This development has up to 15 or so projects running in any particular year and is another important foundation for system improvement in quality teaching for diverse learners but it is a drop in the ocean in terms of system-wide development.

What is needed for scaling up is a value-for-money strategy that will enable teachers across our schools, across the levels of schooling and across the curriculum to be able to engage with relevant and helpful research and development in a way that translates into strengthened pedagogy for diverse learners. The approach taken needs wide teacher education, research and schooling sector ownership of a continuous development model to the point that ongoing development for diverse learners is sustainable. This will mean a shift way from thinking of teacher professional development provision as initiatives. This will mean a shift to build in the conditions to support ongoing teacher professional learning opportunities as business-as-usual in education with enormous follow-on benefits for the children, the profession and the wider society.

Again the evidence can help to inform our agenda for action. The synthesis of evidence about educational reform by Cynthia Coburn *Rethinking scale: Moving beyond numbers to deep and lasting change*⁴¹ takes on this challenge. In the light of the failure of many reforms to lead to lasting improvements in classroom practice, Coburn identifies four dimensions of scaling up that need attention if deep change is to occur: depth, sustainability, spread, and shift in reform ownership. The agenda for action at this conference promises a shared ownership approach. In the light of the New Zealand experience it is clear that ‘a responsiveness to diversity framework’ underpinning the agenda would be critical to real success.

Given the potential of what R & D can offer for educational development it is timely to reflect on what this might mean for practitioners, researchers and policy makers.

Figure 8: Rethinking relationships between practitioners, researchers and policy makers around creating an agenda for action.



As we engage in collaborative discussion around creating an agenda for action it is timely also to consider the need for changes in the ways in which we think about the nature of quality teaching, and what is required in relating to, and working with, each other in order to make a difference for students. The New Zealand Educational Institute and the New Zealand Post Primary Teachers Association have taken a lead in this respect by collaborating to create this unique forum and I thank the NZEI, PPTA and ACSA for this special opportunity. I have formulated the following questions to

⁴¹ Coburn, C. (2003). Rethinking scale: Moving beyond numbers to deep and lasting change. *Educational Researcher*, 32(6), 3-12.

stimulate further thinking about the shifts that we all may need to make to be successful in taking the agenda forward.

Achieving quality teaching for diverse learners at the same time is a complex, professional practice. In creating an agenda for action how do we guard against misleading simplifications that caring teachers, high expectations or good relationships alone will make for better teaching?

There is a danger in the agenda for quality teaching that our activities will fall short of the needs of the diverse learners we serve. How do we keep the learners at the forefront of our agenda?

There is wide agreement about optimising student achievement. The outcomes-linked evidence highlights the significance of students' identities, emotions and social interactions in their engagement, success and well-being. How do we balance priority setting with the need for practices that attend to our children's achievement and their well-being?

Teachers should be able to take great pride in, and be able to share the complexity, brilliance, and set-backs inherent in the project of developing effective evidence-based practice. But teachers frequently see such evidence as the work of researchers not teachers. Is it ethical that research ethics protocols make teachers invisible in so many reported research studies of quality teaching practice?

An evidence-based approach requires systematically attending to what works and what does not work in order to progress. How can we create a learning environment within a democratic society, and within the profession, that supports learning from our experiences at all levels of the system as part of the agenda for action?

How can we get an increased focus on outcomes-linked evidence about effective teacher education, including initial teacher education, and policy development? How do we widen the lens on what works in education and become more systematically reflective in our thinking about wider-system development?

While some educational researchers are heroic in their commitment to working with the profession to make a bigger difference for all of our children, many educational researchers are not engaged with the challenge of improving practice. Is there a much greater role for researchers in contributing to evidence-based development in policy and practice? Is there a role for policy in creating the conditions to promote this?

The kinds of professional learning activities that evidence indicates to make a bigger positive difference for students tend to be student data-linked action-research activities. How can useful forms of action research be effectively supported in professional practice, made available to other educators and built upon? What kind of infrastructure would make this endeavour doable and sustainable?

If policy and research communities become distant from each other, educational innovation may become less and less linked to tertiary infrastructure and R & D. What are the costs for R & D, knowledge creation and sustainable development in education when tertiary educationalists drop out of the loop? How do we develop

infrastructure and interdependencies that keep R & D informing policy and at the heart of teacher education, research and educational practice?

In my current reading of the evidence, and the comparative effect sizes for the impacts of different influences, I see evidence-based teacher professional learning opportunities as the key driver in the agenda for action.

I have highlighted how critical it is that we have an evidence-based approach to the provision of teacher professional learning opportunities that link directly to practice. It is around this vision that I see urgency in the need for researchers, teacher educators, teachers and policy makers to collaborate to achieve our shared goal to do better for all of our children.

Appendix A

Shifts Towards Evidence-Based Teaching

This summary has drawn upon the evidence in the BES⁴² about what does and does not support enhanced outcomes for diverse learners to create an overview of key messages. The key messages have been represented as shifts in order to provoke consideration of the implications of the BES for educational change. The summary depends upon the full consideration of evidence in the *Quality Teaching for Diverse Students in Schooling BES*.

craft practice /rediscovering the wheel	→	evidence-based approach that attends to data about students' learning and to research about effective pedagogy to inform professional teaching practice
teachers have low agency in being effective for students with socio-economic disadvantage	→	(families are important) but teacher agency accounts for at least 42% of variance in scores in available NZ evidence
teaching = common sense endeavour that involves transmission of content/skills	→	complexity of pedagogy and interactions – inter-dependence of characteristics of quality teaching
teacher effectiveness dependent on repertoire of practical strategies	→	evidence-based theory critical tool to enable teachers to generate pedagogy that is responsive to their learners
teachers can infer student engagement from student behaviour	→	teachers need systematic strategies to reveal, understand and be responsive to students' thinking
teaching is a matter of presenting content logically	→	pedagogy needs to be responsive to student learning processes – particularly student memory processes (for example, opportunities to learn need to be carefully spaced and sequenced)
knowledge as individual absorption/reception	→	knowledge as active, social construction hence integral importance of learning community to the learning process
teacher as facilitator / relatively shallow understanding of some content/subject matter	→	teacher deep understanding of all content/subject matter taught and purposes for teaching
learning depends on readiness of learners	→	the teacher's ability to build on learners' prior experiences and scaffold effective learning opportunities is crucial
busy, happy classrooms = good teaching (teacher feel good factor – but much evidence shows problem with impacts on learners)	→	good teaching is teaching that has a positive impact on diverse students' learning and well-being

⁴² Alton-Lee, A. (2003). *Quality teaching for diverse students in schooling: Best evidence synthesis*. Wellington: Ministry of Education . www.minedu.govt.nz/goto/bestevidencesynthesis

if a teacher is caring this is enough to ensure positive outcomes (evidence shows negative impacts on learners via deeply caring teachers)	→	caring is necessary and important but insufficient – teacher must care for students and be knowledgeable about ways to build care amongst student community – but must also care about effective teaching
culture-free, culture not relevant /invisible	→	culture integral to effectiveness of teaching & learning
focus on social well-being and cultural identity too much to ask given size of other teaching responsibilities	→	social well-being, cultural identity and health of the peer culture shaped through everyday educational practices - teachers are inadvertently influencing these outcomes through tasks and activities – important for teachers to do this intentionally and knowledgeably through effective pedagogy
academic focus – social incidental teacher agency and accountability for academic only	→	academic, cultural and social inextricably intertwined – teacher agency and accountability in all three
disciplinary and compliance approaches to classroom management	→	management for learning and self-regulation
learning dependent on teacher's ability to teach each individual child	→	learning dependent on teacher equipping learners with metacognitive skills and strategies
emphasis on <u>the</u> teacher and <u>the</u> child	→	recognition that teachers are teaching diverse learners simultaneously in a group (this is where the evidence-base can help and lower teacher stress)
focus on teacher's direct impacts with respect to specific academic objectives	→	focus both on teacher's direct impact with respect to what is actually learnt and ability to structure a learning environment & design effective tasks and activities
peer culture seen as a force independent of the teacher	→	evidence shows teacher agency instrumental in developing peer culture to create learning community – peer culture constructed through organisation and management of classroom activities
de-emphasises peer impacts	→	intensifies peer supports for learning
overt 'culture of niceness'/ peers reluctant to challenge or contradict /hidden peer conflict	→	learners empowered to allow cognitive conflict to flourish and to develop skills to use cognitive conflict to support learning

assessment disconnected from teaching and learning / over-emphasis on evaluative assessment	➔	predominant use of assessment practices that are diagnostic, descriptive, formative, motivating and, with quality feedback, improve learning
assessment information not available in a form that is useful for informing teaching	➔	aggregation and disaggregation of assessment data purposeful to improve teaching for diverse learners
assessment is prerogative of teacher	➔	assessment includes student self-assessment and peer assessment as students take increasing responsibility for own learning / become more autonomous with respect to own learning
little continuity between teaching approaches for learners of different ages in different curricular areas	➔	generic principles of quality teaching in tension with unique and specific pedagogical approaches responsive to different learners in different curricular areas in different contexts for different purposes
teacher has little agency in parental support for learning	➔	teacher agency critical in enabling parents to support learning