Disciplined innovation for equity and excellence in education: learning from Māori and Pasifika change expertise

Introduction

Invited paper¹ for the World Educational Research Association focal session:
Education of Diverse Students: A Multi Country Perspective

Dr Adrienne Alton-Lee,
Iterative Best Evidence Synthesis [BES] Programme | Hei Kete Raukura,
Ministry of Education, New Zealand.

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Nōreiaka, atawhaitia ngā rito, kia puāwai ngā tamariki.
Ako i ngā tamariki, kia tu tāngata ai, tātou katoa.²

Therefore, cherish and nurture the shoots, so the children will bloom.
Learn from and with these children, so that we all can stand tall.

To meet the United Nations' 'Quality Education for All' challenge, education must move beyond its historical function of sorting. Trustworthy evidence about what makes a bigger difference, why, and how will be a crucial resource in this endeavour. But as the history of educational policy demonstrates, the availability of such evidence is not enough. For decades we have accumulated evidence³ concerning the equity and achievement costs of grade retention, socio-economic segregation, streaming, allocating the lowest qualified teachers or adults to work with struggling learners, ability grouping and labelling, yet disparities in educational outcomes have persisted and, in some jurisdictions, worsened.

Cycles of high-impact collaborative research and development (R & D) in which each cycle informs ongoing implementation – the how as well as the what of improvement – are a key to disciplined innovation that can be scaled to transform teaching and leadership and build educationally powerful connections with families and communities⁴. Such R & D generates knowledge and smart tools that can then be used by others responsively in their own contexts given conditions that support the learning of all those involved, both adults and children.

At the heart of all accelerated improvement are complex pedagogies that translate the 'science' of what works into transformative change through a collaborative process that depends for its success on creating relational trust between all parties. Yet the 'pedagogical core' that is at the heart of education "features surprisingly little in many reform agendas seeking to improve quality and equity around the world". If reform is to serve the equity goals that are fundamental to the well-being of our societies, we need to build and use evidence about effective pedagogies and about change processes.

¹ Presented via skype.
³ Not all year 13 students were retentions; some were transfers.
⁴ A school's decile ranking indicates the socio-economic status (SES) of its community: 1 is low, 10 is high.
**Demonstrated indigenous expertise driving culturally responsive reform**

Internationally there is a growing body of evidence forged from the expertise of indigenous and minoritised leaders about transformative approaches to schooling. New evidence in New Zealand demonstrates how ways of thinking about and doing education require deeper change if they are to work for indigenous Māori students.

Through five phases of collaborative R & D in Te Kotahitanga, indigenous leaders Professor Emeritus Russell Bishop and Associate Professor Mere Berryman forged extraordinary acceleration of improvement for Māori. *Ka Hikitia – A Demonstration Report: Effectiveness of Te Kotahitanga Phase 5 2010–2012*, an analysis of the impact of the fifth phase of this intervention, was released in August 2015. As discussed in the report,

- the achievement of Māori students, as measured by the senior schooling New Zealand Certificate of Educational Achievement (NCEA) levels 1–3, in Phase 5 schools improved at around three times the rate of Māori in the comparison schools
- while the achievement of the comparison group deteriorated following the realignment of NCEA achievement standards, the achievement of Māori students in Phase 5 schools improved
- by 2012 the achievement of year 12 Māori in the Phase 5 schools (mean decile = 3) was on a par with the achievement of year 12 Māori compared across all deciles
- the proportion of Māori students returning/enrolling in year 13 (in 2012, equivalent to two-thirds of the 2011 year 12 cohort) increased markedly in Phase 5 schools
- by 2012 the number of year 13 students achieving NCEA level 3 in Phase 5 schools was nearly three times what it had been four years earlier

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6 International studies show that ‘number of books in home’ is highly indicative of achievement; the digital divide will only amplify this effect. Parents who try to help their children with reading can inadvertently have reverse influence with persisting negative effects, yet one R & D intervention (Reading Together©) supports schools, parents and community libraries to engage so effectively together that in five hours the impact on achievement is greater than a year’s teaching.


8 For a bibliography of publications by Professor Russell Bishop and Associate Professor Mere Berryman see [http://www.educationcounts.govt.nz/topics/bes/resources/te-kotahitanga-ebook-collection (tab 4)].
the proportion of Māori students from Phase 5 schools who were at least 17 at the point of leaving increased at twice the rate for Māori nationally.

Figure 1 shows the comparative data for NCEA Level 2.

Figure 1: Achievement of Phase 5 and non-Te Kotahitanga Māori in NCEA level 2 (2008–09 data are included for comparison purposes).9

This success did not come at the expense of the students' identities as indigenous learners: a very high proportion of year 9 and 10 Māori in Phase 5 schools (87%) reported that it 'always' or 'mostly' felt good to be Māori in their school, and over 60% reported that their teachers 'always' or 'mostly' knew how to help them learn.10

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10 ibid., p. 24.
Disciplined innovation for equity and excellence in education:
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Demonstrated expertise leading effective capacity building

The leaders of this intervention used disciplined cycles of R & D to build capacity in:

- culturally responsive pedagogy
- effective professional development
- transformative and distributed school leadership\(^{11}\) to institutionalise deep change
- developing educationally powerful connections with the identities, families, communities and iwi (tribes) of Māori students.

They also challenged 'mainstream' education to move away from applying deficit attributions to Māori learners and to engage with a new 'cultural pedagogy of relations'.

Antiracist pedagogy fails because it does not explicitly require educators to confront their own complicity in the continuing educational disparities of minoritised youth. We posit that unless educators are willing to confront their own discursive positioning shaped by decades, often centuries, of societal and cultural assumptions, norms, and practices, the deeper structures of disparity and inequality in our education systems will not change. As educators, it is critical to understand how pervasive images of unequal ability, dysfunctional behaviour, or inappropriate outcomes have shaped the ways in which we interact with and teach students from minoritised groups. Educators who recognize the inequitable power arrangements of the status quo begin to acknowledge that instead of finding ways to change the learners, the pedagogical context, or even the institution itself, they must start with themselves. They no longer adopt programs that attempt to address the learning needs of individuals or groups of students in ways that do little more than make them feel better about themselves ...\(^{12}\)

Berryman and the Te Kotahitanga Research and Professional Development team explain:

> The work of leadership, facilitators and teachers to reform deeply embedded and often generally accepted, societal norms of educational disparities for Māori is perhaps our country's greatest challenge. Such changes will not happen by merely saying they must and setting targets. These changes will not happen until we all fully understand the wider social, historical and political context in which an initiative such as Te Kotahitanga has been needed and in which it is subsequently occurring. This work is hard.\(^{13}\)

Leading and driving cultural responsiveness - the 'how' matters

A crucial factor in achieving profound change has been that indigenous education expertise has been leading and driving culturally responsive provision for Māori. In addition to making outstanding use of the evidence for disciplined innovation, Māori leaders have been able to forge and broker the relationships and connections (whakawhanaungatanga) that are integral to the how of improvement. As Berryman explains, "whakawhanaungatanga brings with it connections, responsibilities and commitments".\(^{14}\) Such an approach supports change through collaborative work, face-to-face connections, hands-on involvement, dialogue, reciprocity, and unrelentingly goal focused ways of working.

\(^{11}\) ibid., p. 28.
\(^{14}\) op. cit., Berryman, Nevin, & SooHoo, p. 49.
In late 2012 a policy decision was made to discontinue Te Kotahitanga in its current form and use what had been learned from it and other interventions to enable much wider reach to Māori across the New Zealand secondary school system.

In 2012 Berryman and the team of Te Kotahitanga facilitators negotiated a further year to go back and work not only with Phase 5 schools, but also with schools that had been involved in the earlier phases, which were now wanting to reactivate and revitalise what they had learned, particularly given changes in leadership and teaching staff, and to find ways of institutionalising the reforms. The focus was on transferring responsibility for driving reform from external expertise to school-based expertise, thereby enabling ongoing, sustainable improvement. Even as the intervention was being wound down the team role-modelled a relentless commitment to the use of evidence as a means of learning how faster, greater and more deeply embedded improvement could be obtained.

However, after at least three years of these schools participating in Te Kotahitanga it is a concern that some people in these schools are still coming to these realisations. While we understand change of this kind is very challenging we also need to consider what else we may have done previously. (March 2013, p. 13)\(^1\)

The knowledge and tools refined through that process are now informing a much wider scale-up, Kia Eke Panuku – Building on Success directed by Associate Professor Berryman.

\(^1\)ibid., p. 270.
One school's perspective

The BES report referred to above, *Ka Hikitia – A Demonstration Report: Effectiveness of Te Kotahitanga Phase 5 2010–2012*, was launched in August at Rotorua Boys' High School, a decile 3 school. See Figure 2 for this school's level 2 NCEA results.

Figure 2: Rotorua Boys' High School level 2 NCEA results for Māori students 2009–2014 with means for Māori students and male students from other decile 3 or 4 schools

Led by Principal Chris Grinter, Rotorua Boys' High School accelerated improvement for Māori boys through Te Kotahitanga:

*It was not that we had suddenly discovered a gap in learning outcomes between Māori and non-Māori achievers, we already knew that was the case and we were working on it.*

*It was not that we as a school had not given considerable thought to what was culturally appropriate for the students of our school. It was more a case that we had explored and implemented a range of interventions and strategies that had made good impact, but in themselves were not enough to generate the equity in outcomes or the 'shift' that we were seeking as a school ... we needed something that dug deeper at the cause of this disparity and we knew the solution to a large extent rested with our teachers and our need to work with them and all our non-teaching staff to make them better able to successfully teach our Māori learners.*

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17 National Certificate of Educational Achievement: Year 12, attained by year end.
We needed to align pedagogy with those changes detailed above. We needed, quite simply, to bring about pedagogical change ... Te Kotahitanga has allowed us to undertake the best school-wide professional development programme that I have seen in my career.¹⁸

In 2015 Rotorua Boys' High School has continued to build on its success through Kia Eke Panuku and is now taking a lead role nationally and locally in the new policy model, building collaboration across New Zealand schools and wider learning communities. At the launch of the new BES report Head Boy Rawiri Manley spoke of his journey to outstanding success, of his teachers as stars by which he was able to navigate, and of his profound gratitude to Te Kotahitanga and Kia Eke Panuku leaders and facilitators for the impact they had had on his educational opportunities.

### Disciplined innovation for equity and excellence in education for diverse (all) young learners

In 2010 I was privileged to be working with a group of representatives from New Zealand's primary teachers' union, NZEI Te Riu Roa. I had asked them for advice about how the Iterative Best Evidence Synthesis Programme could generate 'what makes a bigger difference' evidence resources that would most usefully support them in their improvement work. One suggestion was for a resource that focused on unintended racism in the lived culture of classroom practice. Some thought however that teachers were already well aware of racism and that it was no longer the issue it had once been. As the group considered the evidence one young teacher spoke up quietly saying that after just one week at school her new entrant son had come home and asked his parents, "How can I make my skin white?"

Primary schools were not able to access Te Kotahitanga.

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Capacity building for productive communities of learning

It is currently Ministry of Education policy to move from a competitive to a collaborative model of educational improvement. In July 2015, a major step in this direction was taken when the NZEI Te Riu Roa Executive and the Ministry of Education agreed (in their Joint Initiative, Phase 2\(^19\)) to boost children’s educational success through the development of learning communities. Both parties to this agreement have afforded the highest priority to progressing practical steps to raise Māori and Pasifika achievement through “collaborative teaching [that] leads to high quality teaching practice for diverse learners”. The teachers’ union negotiated that educational institutions working within communities of learning will have access to effective professional development opportunities.

Developing Mathematical Inquiry Communities (DMIC): Pasifika Excellence

Following earlier (2010) advice from both teacher unions, a series of five BES ‘exemplars’ was developed to explain in greater depth how improvement could be accelerated in areas of policy priority. The first of these new knowledge tools, BES Exemplar 1: Developing Mathematical Inquiry Communities\(^20\), addressed multiple areas of policy need, particularly mathematics achievement and bullying. For some time international assessments at both secondary and primary level have revealed that mathematics achievement in New Zealand is in a state of decline\(^21\), while international comparisons of the frequency of bullying indicate very high rates bullying, especially in our primary schools\(^22\).

Figure 3: Accelerated achievement for students whose teacher received intensive professional development\(^23\)

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\(^{19}\) Joint Initiative Phase 2, retrieved from http://www.nzei.org.nz/documents/JI/BP-JI-Phase-Two-20150720.pdf


\(^{21}\) See BES Spotlight on Mathematics/Pāngarau, retrieved from http://www.educationcounts.govt.nz/topics/BES/resources/spotlight-on/spotlight-on-mathematics-pangarau


\(^{23}\) op. cit., Alton-Lee, Hunter, Sinnema, & Pulegatoa-Diggins.
After a search of thousands of interventions the approach explained by Cook Island New Zealander Dr Bobbie Hunter in her doctoral study was identified as the standout\textsuperscript{24, 25}. This professional development intervention, which reflected the findings of the Ministry of Education's \textit{Effective pedagogy in mathematics/pāngarau BES} and the \textit{Teacher professional learning and development BES}, saw extraordinary gains by the students in two classes at a school in a low SES area with large Māori and Pasifika populations. The effect sizes for the gains were very large: $d = 2.39$ for Ava's class and $d = 2.53$ for Moana's class.\textsuperscript{26} In practical terms, the intervention accelerated the students' mathematical achievement by the equivalent of around four to five years of business-as-usual teaching.

In August 2015 Associate Professor Bobbie Hunter received a \textbf{special award} acknowledging excellence in educational leadership and mathematics education from the Cook Islands’ government.

\textbf{In-class co-construction for accelerated improvement}

Critical to this magnitude of impact are modelling, co-construction, in-class videoing and mentoring designed to bring about teacher learning and change. At first the mentoring creates profound dissonance for teachers but they come to value it greatly because of its impact on students. Teachers develop new understanding of student learning processes (cognitive science) and mathematical content knowledge through highly expert professional development that embeds content knowledge in practical strategies.\textsuperscript{27}

Equally striking have been qualitative data from high-implementing schools, providing evidence of changes in student participation and communication skills brought about by this collaborative, carefully scaffolded, culturally responsive pedagogy. Ten-year-old Wiremu's directive to a peer, "Don't dis' her, man, when she's taking a risk", exemplifies the shifts students make as they learn what it means to be part of a community of mathematical inquiry.

Professor Emerita Courtney Cazden of Harvard University has recognised this ground-breaking R & D as "\textit{among the best you would find anywhere in the world}".

Hunter's work affords primacy to the Treaty of Waitangi, recognising that partnership with indigenous Māori is foundational for an intervention that draws strongly on Pasifika values, particularly those of respect, reciprocity, love, family, relationships, leadership, inclusion, belonging and service.


\textsuperscript{26} The effect sizes are also in accord (in terms of order of magnitude) with the values of Cramer's $V$, a measure of the strength of association of the Chi-Square tests (given categorical data). For Ava's class, $V = 0.841$ (out of a possible 1) was calculated for the achievement gain. The achievement gain for Moana's class was $V = 0.907$.

Policy advisors in New Zealand were slow to grasp the significance of this approach and the Pasifika expertise at its heart because it did not fit the investment model being used to make decisions about teacher professional development, so for four years high-performing Singapore was able to draw on Hunter's expertise to lead change and develop expertise in teaching indigenous and disadvantaged learners. Nevertheless the Iterative BES Programme, the Ministry of Education's Pasifika unit and Ministerial priority collectively have seen funding made available to initiate the intervention in selected schools – two at first, and 24 to date (30 in 2016).

The title of this paper has a dual focus: disciplined innovation for equity and excellence in education and learning from Māori and Pasifika change expertise what it means to collaboratively implement potentially high-impact R & D.

Supporting accelerated and ongoing improvement to scale

Where examples of highly effective practice have been identified, rarely have sufficient resources been made available to ensure their sustainability or spread. As the Teacher professional learning and development BES found, most highly effective interventions are short-lived and there remain big gaps in the evidence relating to sustainability. The extensive international research literature on scaling up shows that even in well-funded contexts there have been many failed reforms.28

To confront this challenge a presidential session at the 2012 annual meeting of the American Educational Research Association featured an investigation into barriers to, and affordances for scaling up education reform. It was entitled "We know it works here: Can we make it work there?"29


Education research journals are filled with promising practices and interventions, with efficacy established using methods ranging from design experiments to randomized control trials. Taking promising programs, policies, or practices to scale has proven incredibly difficult for education researchers.

The challenges inherent in designing and scaling up interventions include lack of teacher buy-in and participation (Datnow, Hubbard, & Mehan, 2002; Glennan, Bodilly, Galegher, & Kerr, 2004; Nunnery 1998), inadequate attention to the organizational context in which the practices are to be implemented (Bodilly et al., 1998; Elmore, 1996; Fullan, 2001; Stringfield & Datnow, 1998), and conflicts between designs and other district programs or mandates (Berends, Bodilly, & Kirby, 2002; Datnow, McHugh et al., 1998; Stringfield, Datnow et al., 2000).

The result is a persistent research-to-practice gap (e.g., Ball, 1995; Carnine, 1997; Darling-Hammond, 1996; Elmore, 1996; Gersten, Vaughn, Deshler, & Schiller, 1997).

Such findings highlight the importance of brokering invitations to schools, being responsive to context, and ensuring coherence between an intervention and other policies.

They also signal how important it is that policy workers learn new ways to steward and work in collaborative and productive partnerships with change leaders.

New Zealand is fortunate in that Dr Jodie Hunter has brought to the small Developing Mathematical Inquiry Communities (DMIC) team (which comprises scarce expertise in culturally responsive high impact intervention) new scholarship about accelerating improvement in algebraic reasoning, effective professional development, and tailored lesson study as a tool for supporting long-term, sustainable change.

Jodie recently won an award from the Mathematics Educational Research Group of Australasia (MERGA) in recognition of the value of this work for improvement in educational practice. 30

The DMIC approach uses responsively designed, strength-based workshops for families and communities as a means to draw on community funds of knowledge and strengthen the cultural relevance of classroom tasks. A Fulbright Scholarship awarded in 2015 gave Dr Jodie Hunter the opportunity to further develop this significant strand of the work.

Through Te Kotahitanga and DMIC, Māori and Pasifika educational expertise has given us new understanding about how to accelerate improvement for indigenous – and, indeed, all – learners. These approaches fully recognise the pivotal role played by culture in equity and educational excellence. They also highlight the power of relational trust and constructive problem talk to resolve the dissonance occasioned by transformative interventions.

The new improvement science
These messages resonate with Professor Michael Fullan's advice that it is the doing that matters when it comes to educational reform. Te Kotahitanga and DMIC also provide compelling examples of the improvement science that Professor Anthony Bryk has championed through the Carnegie Foundation for the Advancement of Teaching: "improvement science is explicitly designed to accelerate learning-by-doing. It's a more user-centered and problem-centered approach to improving teaching and learning." 31

The challenge for policy is to find ways of learning from and stewarding the available rare expertise so that its potential for accelerating improvement across multiple valued outcomes for diverse (all) learners is maximised.

31 http://www.carnegiefoundation.org/our-ideas/
Evidence in action

In conclusion I present a second video that tells the story of the Developing Mathematical Inquiry Communities approach through the voices of Māori kaumatua Laurie Loper of Ngāi Tahu, the Cook Islands New Zealand expertise behind the intervention, and the children, teachers, and school leaders who in 2015 are exemplifying its impact.

Note: file can be accessed: https://player.vimeo.com/video/155893291