



TEACHING & LEARNING
RESEARCH INITIATIVE
NĀU I WHATU TE KĀKAHU, HE TĀNIKO TAKU

Teaching for equity: How do we do it?

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Introduction

Researchers, teachers, and policy makers around the world are grappling with the challenge of ensuring that increasingly culturally and linguistically diverse student populations are provided with equitable learning opportunities and outcomes (UNESCO, 2014). This challenge takes on particular significance in New Zealand where national and international achievement data persistently show a large gap between our high-achieving and low-achieving learners, a gap that is frequently related to students' ethnicity and socio-economic background. Despite the Ministry of Education's many policies aimed at addressing this challenge (e.g., *Ka Hikitia—Accelerating Success 2013–2017* (Ministry of Education, 2013a) and the *Pasifika Education Plan 2013–2017* (Ministry of Education, 2013b)), data continue to show that students from poor communities, who are often Māori and Pasifika, are more likely to be in the low achieving group, while Pākehā and Asian students are over-represented in the high achieving group (Snook & O'Neill, 2014).

Thus, the question of how can we teach in ways that promote equitable learning outcomes and opportunities for each student remains a critical and urgent issue for New Zealand centres/schools and teachers. This question became the focus of our 2-year project, *Teaching for Equity: How do we do it?*

The context for the study

The *New Zealand Curriculum* (Ministry of Education, 2007) is founded on the belief that students should be provided with the best educational opportunities to enable them to develop the knowledge, skills, and dispositions they need to realise their potential. Therefore, the onus is on practitioners to use teaching practices that support equitable student outcomes and opportunities. While there have been many calls for teachers to teach equitably (e.g., Rubie-Davies, 2014), answers are still needed for questions such as: "What does it really mean to teach for equity?", "How can we build and share practitioner knowledge about what 'teaching for equity' looks like in practice?". Such questions are especially critical for Auckland (the context of this study) because of the increasing diversity of its population. According to the 2013 Census, Auckland accounted for approximately 11% of those who identified as Māori and for two-thirds of the country's Pasifika population. Auckland is also the most culturally diverse city with 39% of Aucklanders born overseas, compared with 18.2% in the rest of New Zealand.

We framed our investigation into what it means to teach for equity in two ways. First, by the "Facets of Practice for Equity" (Facets). The Facets were derived from a cross-international analysis and synthesis of major programmes of research that took a complex view of learning and teaching, and empirically linked teaching practices to equitable learner outcomes—broadly defined to include social-emotional, civic, critical, as well as academic outcomes (Grudnoff et.al., 2017). Across the selected international syntheses,¹ we identified six interconnected patterns of practices consistently associated with positive learning outcomes for diverse students. These are:

1. Selecting worthwhile content and designing and implementing learning opportunities aligned to valued learning outcomes
2. Connecting to students' as learners, and to their lives and experiences*
3. Creating learning-focused, respectful, and supportive learning environments
4. Using evidence to scaffold learning and improve teaching
5. Adopting an inquiry stance and taking responsibility for further professional engagement and learning
6. Recognising and seeking to address classroom, school, and societal practices that reproduce inequity*

* Please refer P. 7 which explains how the wording of Facets 2 and 6 were refined during Phase 1 of this research.

1 The programmes of research were "Measurements of Effective Teaching" from the US (MET Project, 2013); the Teaching and Learning Research Project [TLRP] from the UK (James & Pollard, 2006); three NZ Best Evidence Syntheses (Aitken & Sinnema, 2008; Alton-Lee, 2003; Anthony & Walshaw, 2007); Te Kotahitanga Effective Teaching Profile (Bishop, Berryman & Wearmouth, 2014); and Standards of effective pedagogy for teachers of learners of native Hawaiian descent, and other diverse learners (Dalton, 2007).

We conceptualised these Facets as general principles rather than specific strategies or behaviours, consistent with the idea that teaching and learning are complex processes that are not fully predictable or linear (Cochran-Smith et al., 2014).

The second frame for the research project was inquiry. *The New Zealand Curriculum* (Ministry of Education, 2007) identifies teaching as inquiry as being a key part of how teachers ensure success for all the students in their class. The purpose of teaching as inquiry is for teachers to achieve improved outcomes by inquiring into the impact of their teaching on their students. In this project, we built on the evidence-based idea that teacher professional learning and students' learning are enhanced through teachers' engagement in collaborative inquiry communities. For example, Cochran-Smith and Lytle (2009) documented the international use of professional learning inquiry communities which aimed to improve students' learning and enhance their life chances. They argued that when inquiry is taken up as a stance on teaching, learning, and schooling, inquiry communities generate local knowledge, re-envision and theorise their practice, and interpret and interrogate the theory and research of others. Similarly, Fullan (2011) identified the benefits of effective collaborative practice both in and between schools, as well as the need for well-led teams of teachers working together to build individual and collective capacity to improve student outcomes. He contended that while it might be 'easier' to go to a professional development workshop or course, the learning that occurs at school with colleagues is much more powerful in terms of underpinning sustainable pedagogical change. The notion that collaborative practice within and across schools results in better learning for diverse students also aligns with the Ministry of Education's Communities of Learning / Kāhui Ako initiative in which centres/schools work together to set achievement challenges to improve teaching and leadership practices in the service of the learners in their community.

Given the increasing focus on digital technologies to support teacher as well as student learning (e.g. the Ministry of Education's Enabling e-Learning initiative www.educationcounts.govt.nz/topics/ict_themes), we used a web-based platform, 'Knowledge Forum', to find out more about the factors that help or hinder the use of digital technologies for professional learning and knowledge building within and across schools. The idea of knowledge building is consistent with the project's inquiry frame. The goal of knowledge building is "the production and continual improvement of ideas of value to a community" (Scardamalia & Bereiter, 2003, p. 1370) and is based on the premise that participants in a community can collectively create authentic knowledge and advance communal knowledge about practice in ways similar to research and science communities (Lee, Chan, & van Aalst, 2006). Inquiry communities using this software have been researched in New Zealand (e.g., Lai, 2014) and more widely internationally (Scardamalia, 2002), and findings have shown that groups sharing expertise and insights can build valuable knowledge. However, we believe that this project was among the first to use this software for practitioner knowledge building, rather than with students.

The overarching question driving this research was: *How and to what extent can a cross-sector collaborative inquiry community build, utilise, and share knowledge of practice for the successful teaching of priority learners?*² Within the framework of the research question we had three main aims:

1. To generate and share knowledge about what it means to teach for equity in the New Zealand context.
2. To determine how, and to what extent, that knowledge about teaching for equity can be used to transform practice to improve learner outcomes.
3. To evaluate the utility of Knowledge Forum as a professional learning tool used for both face-to-face and at a distance discussions.

2 When this project began the term 'priority learners' was used by the Ministry of Education to denote students who had been historically underserved by the education system (i.e. Māori and Pasifika students, those from low socio-economic communities, and children with special education needs).

Research design

This 2-year project was underpinned by a social constructivist epistemology which accepts that knowledge is socially constructed (Vygotsky, 1978). We took a critical realist approach (Edwards, O'Mahoney, & Vincent, 2014) acknowledging both the ways individuals make meaning of their experience within broader social contexts and the reality of these contexts outside of this meaning making.

The context for this research was a collaborative inquiry community comprising nine Auckland primary teachers and five university teacher educator researchers who came together to generate and share knowledge about teaching and learning that promotes equitable opportunities and outcomes for priority learners. The teachers were from two Auckland schools in low socio-economic communities. The principals of both schools engaged in the project and attended some full team meetings. Each school had approximately 15% students who were Māori. School A had 31% and School B had 47% Pasifika students. School A had a high proportion of special needs children. The teachers in both schools were culturally diverse. The teacher educators had long-established relationships with the schools, involving both initial teacher education and professional experience innovations. The schools were geographically distant from each other because we wanted to evaluate Knowledge Forum for its utility as a professional learning tool for distance as well as face-to-face interactions.

There were two phases to this 2-year project:

Phase 1

In the first year of the project we used the Facets of Practice for Equity to build and share knowledge about what it means to teach for equity in the New Zealand context. In this phase, three teacher educators worked collaboratively with the nine teachers (four in School A, five in School B) as well as across the two schools via face-to-face and Knowledge Forum discussions. The teachers and teacher educators met five times at each of the schools and twice as a combined group. Most of the meetings lasted for at least 3 hours, for a total of almost 50 hours. As well as engaging in professional discussion of the facets of practice for equity, the groups set up and used the Knowledge Forum software (Scardimalia & Bereiter, 2003) as a means of capturing the knowledge that we were building together about facets. All discussions were audiotaped and then transcribed. Two of the university-based researchers took field notes at each of the discussion meetings. Between meetings the members of the community of inquiry were encouraged to consider their practice and to upload this information onto the Knowledge Forum facet sites. Audio recordings of classroom practice, notes, and professional development documents were attached to the sites and brought forward to discussion. The research questions for this phase were: (1) *What do the Facets of Practice for Equity look like in the practice of New Zealand primary teachers?* (2) *To what extent do the research-derived Facets apply to teaching for equity in New Zealand primary schools?*; (3) *How valuable was Knowledge Forum for building collaborative knowledge about practice for equity?*

Phase 2

In the second year, we used the knowledge generated from Phase 1 to inquire into and improve practice within classrooms and in the wider school. The inquiry phase comprised seven teachers (one Phase 1 teacher from School B had gained an NZEI Study Award and another from School A was on maternity leave) and three teacher educators. Three collaborative inquiry teams were established, each with school and teacher educator members acting as critical friends for each other. Two teams were made up of 'within school' members, and one team included members from both schools. Inquiry journals were used to record the research focus, rationale, cycle questions, and processes, and outcomes from the inquiries. Data were collected from the critical friend interactions, inquiry journals, pre- and post-inquiry interviews, and transcripts from whole team collaborative inquiry team meetings. The research question for this phase was: *How, and to what extent, can knowledge about teaching for equity be used to transform practice to improve learner outcomes?*

Data for the overall research project included extensive transcripts of professional discussions, field notes taken during the discussions, Knowledge Forum Facet sites and additional material added to these sites. Analysis of the material was carried out using thematic analysis approaches (Braun & Clarke, 2006), with two members of the Faculty research team checking consistency in interpretation of data.

While this project was TLRI funded for 2 years, we wanted to continue investigating the impact of the research in the following year, as indicated in the Year 3 entry in Figure 1 below. The figure summarises the research questions, participants, data gathering and analysis strategies over the 2 years of the project.

Figure 1: Summary of the project’s research questions, participants, data gathering and analysis strategies

Research questions	Participants/ Researchers	Data gathering/sources	Data analysis strategies
<p>Year 1—Phase 1 2016</p> <p>RQ1: What do the Facets of Practice for Equity look like in the practice of New Zealand primary teachers?</p> <p>RQ2: To what extent do the research-derived Facets apply to teaching for equity in New Zealand primary schools?;</p> <p>RQ3: How valuable was the Knowledge Forum platform for building collaborative knowledge about practice for equity?</p>	<ul style="list-style-type: none"> • Nine teachers from two schools • and • three teacher educators 	<ul style="list-style-type: none"> • Face to face group equity/facet discussions in each school were captured on audiotape and Knowledge Forum software. • Online discussions at a distance were captured using Knowledge Forum software. • All teacher participants were interviewed twice during the year by one of the teacher educators. • Discussions during whole team meetings were taped. 	<p>Qualitative data from discussion and interview transcripts were transcribed and analysed using thematic analysis. The data were also analysed using directed qualitative content analysis procedures in order to identify facets of practice for equity as they were exemplified in the practices of the schools. Knowledge Forum entries were analysed to identify knowledge building processes and outcomes.</p>
<p>Year 2—Phase 2 2017</p> <p>RQ: How, and to what extent, can knowledge about teaching for equity be used to transform practice to improve learner outcomes?</p>	<p>Seven teachers from two schools and three teacher educators forming three inquiry teams:</p> <ul style="list-style-type: none"> (i) One teacher educator and a senior teacher from each school—focus on Facet 6 (ii) One teacher educator and two teachers from School A—focus on Facet 2 (iii) One teacher educator and three teachers from School B—focus on Learning Mathematics across several Year levels and Facets 	<ul style="list-style-type: none"> • Inquiry teams kept detailed notes of the processes of inquiry. • A number of inquiry team discussions were captured on tape and transcribed. • Inquiry teams presented findings to the entire collaborative research team twice during the year— these presentations were taped and videoed material submitted to the PI. • Teacher participants were interviewed twice during the year by one of the teacher educator team. • Discussions during whole team meetings were taped. 	<p>The inquiry teams carried out their own analysis of data as part of the inquiry research they were engaged in. Qualitative data from discussion and interview transcripts were transcribed and analysed using thematic analysis.</p>
<p>Year 3 2018</p> <p>Follow-up to investigate the impact of the project</p>	<p>Two teacher educators and two senior teachers— one from each school</p>	<p>Exploration of the impact of the project on practice for equity within the two schools</p>	<p>Qualitative data from interview transcript were analysed against a theoretical framework for effective professional learning communities.</p>

Key findings—Phase 1

In the first year of this research (Phase 1), four teachers from School A, five from School B, and three teacher educators (N=12) generated and shared knowledge about teaching and learning that promotes equitable student opportunities and outcomes. From this phase, we: (1) identified the processes of building knowledge; (2) gained understanding of how the Facets are applied in teaching-learning situations; (3) refined understandings of equity; (4) refined (changed or elaborated) the Facets to capture the richness of practice for teaching for equity; and (5) evaluated the utility of the Knowledge Forum platform for building collaborative knowledge about practice for equity?

1. Processes of building knowledge

Transcript analysis of teachers and teacher educator discussions about how the Facets might be observed in practice identified a number of conversational, knowledge building, processes. These were: *presenting* (sharing); *clarifying* (inviting comment); *adding* (more information about original or providing an additional example); *querying* (seeking additional information, sometimes of practice, sometimes contextual); *reflecting*; *theorising* practice; *considering implications* (for individual child, class group, teacher, school, parents); and *summarising* (and/or affirming). Early in the project the university-based researcher(s) were active in *querying / seeking additional information* but as the project developed the teachers largely took over this role.

2. Application of the Facets in practice

Analysis of the transcripts from the face-to-face meetings and Knowledge Forum pages confirmed the original conception of the Facets; that while the facets were defined as six indicators of teaching for equity, in practice they were very integrated and intricately linked. For example, explanations of Facet 1 (*Selecting worthwhile content and designing and implementing learning opportunities aligned to valued learning outcomes*) were often linked to Facet 2 (*Connecting to students' lives and experiences*), Facet 3 (*Creating learning-focused, respectful and supportive learning environments*) and Facet 4 (*Using evidence to scaffold learning and improve teaching*). This is also consistent with our conceptualisation of the Facets as general principles, recognising the complexity of teaching and learning, rather specific strategies or behaviours (Cochran-Smith et al., 2014).

Discussions of any of the Facets regularly included links to Facet 6, highlighting how the notions captured by this Facet underpinned the practices of the teachers in the study. At one school a discussion of Facet 1 (*Selecting worthwhile content and designing and implementing learning opportunities aligned to valued learning outcomes*) exemplified this. During this discussion, teachers explained their thinking about how to support a student with severe physical disabilities on a nature study trip to an offshore island. The trip involved transfers from bus to boat and from boat to island wharf as well as movement along pathways once on the island. Originally the school thought that the student would be better left at school because of difficulties managing the trip in her wheelchair. However, following our discussions on equity the teachers planning the trip and the school's special needs co-ordinator worked out ways she could take part in this learning opportunity. Understanding that the student would need to be provided with additional assistance, the school contacted the island's caretakers and rangers to organise mobility support to enable the student to move around the island with her peers. The teachers believed that this carefully considered approach arose because they had come to consider equity more carefully, in particular an understanding of how the concept of equity was different to that of equality.

Other key findings linked to Facet 6 were associated with the normalising of diversity and challenging marginalisation. This was associated with ethnicity, language, and with learners with special needs and involved culturally responsive and relational pedagogies. For example, a teacher from School A commented that "*We have this commitment to diversity and difference and inclusivity, that people have a right to be learning in a multicultural diverse community and it's got nothing to do with religion, sexuality.*"

The teachers in School A also emphasised the importance of *Ako*, with teachers being expected to be learners, learning from the students in this situation. This links directly to Facet 5 (*taking responsibility for further professional learning*) and recognised an individual teacher's learning needs (Facet 2 for the teachers!). There was a strong focus on supporting teachers to gather data and make decisions based on this (Facet 4).

In School B, discussions around *connecting to students' lives and experiences* (Facet 2) was linked more to understanding the diversity of students' culture and ethnicity. As one teacher explained, they celebrated/used: *"diversity as a positive, as opposed to seeing it as a problem. To see it as a problem you know there's all this range of stuff that you somehow have got to manage, rather than just enjoying the diversity."*

The teachers in School B were also strong believers in gathering data (Facet 4) to inform their practice; whether this was informal, on spot observations of children, through testing, collegial teacher reflection, or through engagement with the community, such as parent-teacher exchange. For example, school-wide data had indicated a mathematics concern so they linked the teacher performance management system to this and trialled a variety of approaches to teaching mathematics (Facets 1 and 3).

3. Refining understandings of equity

Over the Phase 1 year it became clear that as a community of inquiry we were refining our understandings of the concept of equity. The teachers indicated that the Phase 1 discussions had heightened their personal and professional awareness of the difference between equity and equality and how equitable/inequitable practices influenced the learning of diverse New Zealand students. They noted that engagement in the discussions made them more reflective as teachers, senior managers and as a whole school. One commented that it *deepened our thinking as we discussed a range of perspectives*. Another commented that *we are now considering equity more. This has highlighted practices we were using that need to change*. The discussions also revealed teachers' experiences of inequities in their personal lives and the experiences of a number of their own children. As one teacher said, *everyone had experienced inequity in some way, which was sad*.

4. Refining the Facets of Practice for Equity

During Phase 1, we also realised that we needed to refine (change or elaborate) the phrasing Facets 2 and 6.

Facet 2 *Connecting to students' lives and experiences* was expanded to become *Connecting to students as learners, and to their lives and experiences*. We made this change as we realised that it was not sufficient to simply connect to the children's lives and experiences but that as teachers we needed to understand the learning preferences of the children in the classroom. As one teacher in School A explained:

If a child has a fascination for only one or two things (such as trains) and you want them to write about something else then they just won't write. So, you say "OK, I want you to do a recount of a time you went on a train. Everyone else is writing a recount of something else but I want you to recount your train trip." ...

This teacher knew about this child's fascination for trains *"because he told [her] so in a before-school discussion"*, thus reinforcing the importance of informal discussions with children for teachers who truly wish to know their students as learners (Facet 2).

Facet 6 *Recognising and challenging classroom, school, and societal practices that reproduce inequities*, was changed to *Recognising and seeking to address, classroom, school and societal practices that reproduce inequity*. The discussions noted that 'seeking to address' can involve changing personal behaviour, modelling behaviours that they wished other children to follow when working alongside, for example, a child with special needs, or challenging inadequate systemic expectations or provisions, at both school and national levels.

As we analysed our findings at the end of Phase 1 we also realised that there may be some further refining of the facets. There is a recognition that 'relationships' and 'teacher expectation' both could be more explicitly addressed in the facets.

5. The utility of Knowledge Forum for building collaborative knowledge about practice for equity

Throughout Phase 1 we continuously evaluated the use of Knowledge Forum for building and sharing deep understandings of the Facets and for teacher professional learning. As noted above, the platform has been extensively used with school students but we believe that we were the first to use this platform with teachers/teacher educators. Discussion transcripts identified a number of positive aspects to the Knowledge Forum. These included:

- As a repository of ideas. Knowledge Forum was viewed to be useful for summarising, synthesising, refining and revisiting ideas/discussions. As a School B teacher noted, *Synthesising ideas is helpful for the group as it provided reminders of examples for people, it recapped learning.*
- Matching with preferred thinking/engagement styles. For example, a School A teacher thought that *if there are more ways to join in discussions then you can capture more voices. That gives more equitable access to knowledge for people who work in different ways.*
- Ability to attach artefacts such as notes, photographs. Comparing it to other platforms a School B teacher thought that *Google Docs is better if you've got, like, a Word document and you all want to make, contribute, contributions to a single document, whereas if you're just wanting to share ideas and you want it to be a bit more like a brainstorm and a bit messier, this would be better".*

While the team saw Knowledge Forum's potential for collaborative professional learning within and across schools, a number of issues impacted negatively on the collaborative inquiry community's effective use of the platform. These included:

- Internet access issues, particularly at School A. As one participant commented: *If Knowledge Forum is to be used to capture face-to-face discussions or at a distance when teachers can't get together, then we need to ensure that the technology is working.*
- Technical issues also interfered with collaborative knowledge building as it *interrupted discussions. Trying to get the technology going was so frustrating.*
- Cumbersome nature of the platform compared to other systems. For example, *the concept is good [but] couldn't always get on to KF—always loading, only one person could get on.* Another thought *there was too much clicking to get to different views.*
- Some participants thought it was isolating. As one commented, *I can build ideas better in a (physical) social space—when you can see someone you can get more nuances.*

Nevertheless, the difficulties with Knowledge Forum did not affect robust professional discussions in reviewing and revising the patterns of practice for equity, and assessing their relevance for New Zealand teachers. Throughout Phase 1, the teams continued to have rich and discussions, which were audiotaped as well as captured electronically via Knowledge Forum, particularly for School B which did not suffer as many internet access issues as did School A.

Collaborative knowledge building is more than sharing examples or recording ideas. Analysis of the meeting data reinforce the importance of face-to-face engagement in facilitating rich discussion within a collaborative inquiry community because *teaching is inherently social and the social element is critical. It's the participation in the conversation that makes a difference—to relationships and learning.* Another teacher noted that *the face-to-face bit is implied in the Facets, so why wouldn't we expect this kind of work to need face-to-face conversation.*

Meeting and working together over the first year of the project was important for building trust and for facilitating an *openness that was the key to sharing.* This enabled rich and robust discussions to occur. As one participant commented, *trust was critical to sharing ideas and examples of equity/inequity.* Building trust was critical for ensuring that everyone became a member of the collaborative inquiry community and that they felt safe to contribute their ideas and practice examples, and all endorsed the comment that *discussion was very democratic even though people had different positions in the school—from principal to beginning teacher. Everyone contributed.*

From the above findings, it can be inferred that the trust and rich conceptual and practical understandings about equity built over Phase 1 project provided a strong foundation for Phase 2 of the project, which is discussed below.

Key findings—Phase 2

In the second year of the TLRI research, members of the collaborative inquiry team used the knowledge generated in Phase 1 to inquire into and improve their practice with the learners in their classrooms and in the wider school. While consistent with the notions of teaching as inquiry expressed in the *New Zealand Curriculum* (Ministry of Education, 2007), in this project we purposefully utilised teacher inquiry as a research process. Thus, following University ethics approval, three collaborative inquiry teams engaged in an iterative process of systematically gathering and analysing data in order to set and answer their inquiry questions.

The following studies show how the three collaborative inquiry teams, each with school and university members acting as critical friends for each other, undertook research in relation to the Facets. Two teams were 'within school' teams and one included members from both schools. The overall research question for Phase 2 is: *How, and to what extent, can knowledge about teaching for equity can be used to transform practice to improve learner outcomes?*

Inquiry team School A: How might using the Facets of Practice for Equity improve teaching of mathematics and outcomes for our learners?

Coinciding with the second phase of the TLRI project, School A had initiated a whole-school focus on mathematics teaching and learning. From the work in Phase 1, the teachers and teacher educator brought the Facets and the context of mathematics together to inquire into improving the equity of outcomes for learners. The teachers chose two facets to investigate: Facet 2 'Connecting to students as learners, their lives and experiences' and Facet 4 'Using evidence to scaffold learning and improve teaching'. Two inquiries were developed to look into what these facets might mean for mathematics teaching and learning that improved outcomes for all learners.

Inquiry 1: This took up the question: *What happens if I share evidence about students' problem solving with the students? How does this enable me to scaffold learning and improve teaching?* The teacher undertaking this inquiry had concerns about her Year 2 class' oral contributions in mathematics discussions. Only the more confident children participated and the teacher noticed that the children did not have the vocabulary they needed to express their ideas. To broaden participation and provide opportunities for the children to reflect on their work and discuss its outcomes, the teacher decided to record the children working on problems and then share the recordings, other photos and artefacts from the problem solving with the children the next day. The children had several experiences of revisiting evidence of their learning and talking about it in deeper ways over time. A sequence of lessons where the children mapped out the constellation of Matariki, and then made enlargements of their model provided a rich and engaging context for the children to share their ideas, and resulted in participation by a larger number of students. Students watched the videos without sound, and discussed what they could see, describing their actions and the mathematics. The videos could be stopped and replayed while the teacher added in additional vocabulary that the children could use on the next play-through. Systematic gathering and display of problem-solving strategies encouraged talk about mathematics and contributed to a shared class vocabulary. Patterns of participation shifted to include more class members, and occurrence of mathematics vocabulary increased. The use of evidence of learning with the children scaffolded their learning and improved equity of access through participation in these target lessons.

Inquiry 2: This took up the question: *What happens if we buddy Year 1 and Year 5/6 students to do problem solving? How does this enable us to connect to them as learners, their lives and experiences?* A Year 1 teacher and a Year 5/6 teacher identified issues around the relationship between the languages the children spoke and connecting them to ideas in mathematics. The Year 1 teacher was concerned about how difficult it was for her

to encourage the children to speak, and was aware that she was requiring them to speak in English, where perhaps they could understand and communicate better about mathematics in their home languages, which she could not speak. Together with the Year 5/6 teacher, the Year 1 teacher decided to try using 'big buddies' from the Year 5/6 classes to work on some language-based mathematics activities with the Year 1 students. The teachers were eager to see if the children used home languages, participated more, or took more risks with their learning when working with the older buddies. Three sessions were held over two terms. After each session, the teachers met and debriefed what had happened, analysed the artefacts from the session and adapted their approach for subsequent sessions.

The first session of this inquiry involved the two classes building towers. The teachers discovered logistical challenges in finding enough space for the activity, and in the volume of noise generated—it was hard for the children to hear and to think. The second and third sessions focused on measurement language (shorter than and longer than) and were conducted outside. These two sessions were very successful in engaging the younger learners. They appeared more confident with a buddy than with the teacher, and were observed to talk more than in class. Sessions were videoed by the older buddies and these videos were used to understand what the children talked about and how they did it. All the tuakana-teina pairs spoke in English, so the teachers' hypotheses about using home languages were not borne out. All the younger children showed high levels of engagement and increased speaking, leading the teachers to conclude that an ongoing learning-focused relationship between the classes would be productive for both the older and the younger children. The tuakana children were able to connect readily to the younger learners and through this the teachers were able to observe and learn more about their students, providing stronger connection points to their lives and experiences for future lessons.

Inquiry team School B: Enhancing equity through connecting to students as learners, and to their lives and experiences

This inquiry team comprised two teachers who were syndicate leaders at School A and one teacher educator. Inspired by understandings developed through Phase 1 of the project, the teachers had been puzzling about how to connect much more closely with students' families in order to better know and understand their students in context (Facet 2). The school makes great efforts to connect with parents and whānau, but building relationships with some was challenging. This led to an inquiry focused on building stronger home-school connections in order to increase equity through quality engagement across the two syndicates.

During Phase 1, the teachers had brought up the challenges that they and their syndicates faced in making connections with students and their parents/whānau. The inquiry teachers identified three main issues: (1) most communications seemed to be in one direction, from school to home, and requests for whānau to contact the school were often not responded to; (2) very little homework was being returned to school, often of poor quality; and (3) enacting Facet 2 was difficult because the teachers did not know enough about the interests and experiences of many of the students. Hence, the question that drove this inquiry was *how can we enhance equity through connecting with students' lives and experiences?*

Inquiry Issue 1: Within their own classrooms, the two syndicate leaders significantly increased the use of texts and emails to contact the parents and whānau, including providing regular positive information for families about their children's progress and activities. This approach reduced stress about having to make phone calls as a first point of contact and enabled a large amount of information to be shared quite quickly. They also re-ignited the use of the school's electronic portfolio as a two-way communication tool in order to provide families with another means of communication.

Interaction data collected from electronic sources (mobile phones and electronic portfolios) before these initiatives, and after two terms of implementation, demonstrated a distinct change in the interaction patterns between home and school. Texts and emails increased positive messages from teachers, and enabled whānau to see how they could contribute, and respond in a form that they were mostly very familiar with. The use of mobile devices brought families who had not visited before into the school, and parents and children alike interacted virtually through the portfolio.

Inquiry Issues 2 and 3: Next, the project teachers widened the study to teachers in both syndicates. Together they all created a survey to find out what parents and caregivers wanted in terms of homework. An unexpectedly high rate of return to the survey (100% in senior syndicate, 80% in middle syndicate) produced findings leading the teachers to introduce innovative homework systems designed to bring the children's lives into the classroom. The data led the senior syndicate to implement a "choices project" with nine activities that the students choose from, and with one 'must do' activity. The middle syndicate gave their students an optional project each week based on a letter of the alphabet. Additionally, the teachers in both syndicates gave a longer timeframe for completing the projects, as parents' surveys showed they wanted time over the weekend to work with their children. Previously, homework was handed out on a Monday and was due back on the Friday.

Findings showed that as a result of the increased parent/whānau school interactions and through what the teachers and other students learned from the homework projects, there was a marked shift in the quality of the homework, and number of children completing it. There was also a clear increase in the way parents and children collaborated on homework projects and the approach was more exciting and motivating for students. The homework produced was highly visible, very creative, and motivated other students to participate through the interest generated in students' lives. Teachers and students alike learned a great deal about the children's interests and lives. The teachers then planned more relevant lessons, chose more appropriate resources and interacted more competently with their very diverse students.

The teachers in this inquiry team firmly believed that *undertaking the research and working together on the inquiries, together with university partners, built much stronger relationships with students and their whānau*. They thought that the focus on Facet 2 substantially increased equity in the two syndicates as teachers used their greater understandings of students' lives and experiences to develop learning experiences that were interesting and relevant to their students.

Cross-school inquiry team: *Enhancing equity through recognising and seeking to address classroom, school and societal practices that reproduce inequity.*

This inquiry comprised a senior leader from each of the two schools and one teacher educator. They decided to focus on Facet 6 (*Recognising and seeking to address, classroom, school and societal practices that reproduce inequity*) because they believed their leadership roles included a responsibility to bring about systematic change for the benefit of the children in their schools.

Very early in the second year of the project, the senior leaders in both schools noticed a marked increase in students being sent to them by teachers because of behavioural problems. They were concerned about equity issues related to the impact on the opportunities to learn for both the misbehaving students and their classmates. Their decision to address their common problem of practice led to their initial research question: *Why are teachers sending increased number of students to senior staff because of behavioural problems, and how will addressing this reduce classroom and school practices that reproduce inequities?*

To address this question the senior leaders each gathered school-specific data over a 2-week period, which included the type, frequency, time and location of the incident that led students being sent to the senior leaders. They also interviewed a small sample of students who had been sent to them, and teachers, to gain insights into what they thought were the reasons for misbehaviour and being sent to the senior leaders. Analysis of the data showed that in both schools, students being sent to them were mainly from specific year groups, at specific times in the school day, and that some students were sent multiple times over the 2-week data gathering period. The data also revealed the large amount of time taken by the senior leaders in addressing the misbehaviour; for example, approximately 11 hours over the 2-week period. Collaborative analysis and discussion of all the data suggested that the 'causes' of the misbehaviour were different for each school, which led to two different research questions for the stage of the inquiry.

The data related to School A led the senior leader to focus on writing for a specific year group. Thus, the research question was: *How will changing our approach to writing in Year 5/6 affect student engagement and*

enjoyment in writing and what, if any affect will this have on student behaviour? The leader worked with one teacher from this year group who volunteered to a 4-week trial of a new language experience approach to writing which gave children the choice of how they wrote about the experience. The leader worked as this teacher's critical friend to implement and assess the impact of this new approach. The data showed that during this period no children were sent out of class for misbehaviour. Furthermore, all the children completed writing (which had not been the case previously) and interview data showed that they really liked being able to choose rather than being told to write in a particular genre. The outcomes of this inquiry led to the development of a school-wide focus on a language experience student choice approach to writing.

In School B, analysis of the data led to a hunch that most of the behaviour difficulties related to Year 3/4 was because the children had not been adequately prepared for the big jump from Year 2 in terms of learning expectations. This led to the new inquiry question: *How can we better prepare Year 2 students to become more independent and so facilitate a smoother transition to Year 3/4.* After researching ways of building independence, the senior leader worked with one teacher volunteer to trial a "can do/must do" strategy to build self-management skills in Year 2 children. Given the positive outcomes from this approach (ascertained from the reduction to nil in children being sent out for misbehaviour and observations of their increased task independence), the school decided to introduce this strategy to all Year 2 classes the following year, and to investigate the results of this innovation.

Summary of Phase 2 findings

The members of the three collaborative inquiry teams were interviewed twice during Phase 2 by a teacher educator member of the full TLRI team who was not involved in the inquiries. Analysis of the interview transcripts and inquiry team meeting notes indicated that the overarching research question on p. 3 above had been answered in the affirmative. That is, a cross-sector collaborative inquiry community did indeed build, share, and utilise knowledge of equitable practice for the successful teaching of priority learners.

Following is a summary of the key aspects of Phase 2 using participant voice:

- Facets of Practice for Equity: *The Facets really made us think about the reasons why different learners might be marginalised—not just the obvious ones such as a health conditions, etc. And the Facets were useful to focus inquiry and a framework to address inequities in our school.*
- Teaching as inquiry: *Reminded us that inquiry is not a tick-box kind of thing. It's about having an inquiry mind-set when looking at our own practice.*
- Real problems of practice: *It helped that the inquiries focused on a genuine need.*
- Importance of data: *I realised how important it was to not assume that things are what they seem. You need to gather and analyse data to get a closer view on what is really happening.*
- Being part of a collaborative inquiry community: *It would have been harder if there weren't other staff members (also) doing the inquiry. The process definitely provided me with professional development.*
- Critical friends: *Working with critical friends from different sites and in similar roles supported me to go deeper and to keep going. It made it more enjoyable. And it was great having people outside looking in. The different perspectives helped with the inquiry, including the emotional aspects.*
- Trust: *Trust was paramount in the critical friend relationships. Also, you need to establish relationships with someone you can trust ... to share your concerns and make decisions about what to do next.*
- Research expertise: *it was really important to have someone telling you to keep going back to the data: Without that I would have jumped to "I know why".*
- Location of meetings: *I liked going off-site as distractions were reduced and I could be more focused on the inquiry discussions. For a COL, it would be good to have some kind of meeting space that would have the same effect. I guess for everyone to experience that in the COL, we would need to look at rotating where meetings were held like we did in this project.*

Implications for practice

- Engagement in cross-sector collaborative inquiry communities that include both pedagogical and research expertise provides rich opportunities for building knowledge and skills for equitable teaching practices.
- Teaching for equity requires practitioners to identify and challenge classroom and school practices that marginalise learners and their parents/whānau. A deep understanding of the difference between equity and equality in relation to teaching and learning is critical.
- Inquiry is a powerful process for investigating and changing practice. Collecting evidence from practice requires an investment of time to think about what to collect, how to collect it, and to work out what the data means for enhancing teaching and learning.
- Having time and space to work collaboratively outside of the everyday business of schools/classrooms is vital to building, sharing, and implementing practical knowledge for teaching for equity.
- Trust is critical to collaborative inquiry as people need to feel safe to identify and discuss issues arising from their inquiries and their learning. Working together over time on real problems of practice with the support of critical friends and honest collaborative inquiry discussions builds trust.
- While web-based systems can be used to build and share professional knowledge, stability and access issues must be addressed for this to be effective. The findings suggest that web-based systems should be supplemented with face-to-face engagement to build trust and facilitate rich discussion within a collaborative inquiry community

Limitations

This research was undertaken with participants from one university and two primary schools. It does not attempt to consider teaching for equity in the early childhood or secondary contexts. Also, as the university and schools were located in Auckland, the findings may not may apply to other primary schools in other areas.

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Research team

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