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Learning from the QTR&D Programme

Findings Of the External Evaluation

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October 2008

APORIA: Confronting an open question with an awareness both of the complexity of the issue and of the fundamental importance of pursuing a solution.

(From the Socratic Dialogues)

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EXECUTIVE SUMMARY

The Quality Teaching Research and Development Programme (QTR&D) was a bold and ambitious pilot development and research project. It was designed as an exploratory programme to understand more about quality teaching for Māori and Pasifika students, within designated contexts (literacy, numeracy, social studies and science) and across different language settings (English, Māori and Samoan bilingual). The Ministry of Education contracted with tertiary institutions to provide graduate and/or post-graduate courses and on-site support for teachers, in order to enhance the quality of teaching for Māori and Pasifika students. The foundational tenets of QTR&D were partnerships, quality teaching, collaborative inquiry and cultural responsiveness, with each provider determining the interrelationship of these elements in their Hub.

Careful documentation and ongoing reflection within QTR&D has provided tremendous insights into the complexity and the importance of mounting large-scale professional learning programmes. This summary details the key learnings from the external evaluation of QTR&D, based on the analysis of documents submitted to the Ministry in relation to the programme, supplemented by attendance at Research Facilitators and Research Coordinator meetings, visits to several Hub presentations and interviews with key informants from within the programme.

When the Ministry of Education designed the QTR&D Programme, it was a strong statement that learning and teaching of Māori and Pasifika students is a high priority. In its conception, QTR&D was a bold and ambitious initiative that melded many elements (partnerships, high quality teaching, inquiry, responsiveness to culture), in order to support teachers' professional learning for working in Māori and Pasifika contexts. QTR&D was built on solid foundations and knowledge about the elements of professional learning that might enhance learning for Māori and Pasifika students and the pilot process produced many examples of changes in teachers' beliefs and practices, some of which have promise for influencing student learning. Unfortunately, like many professional learning programmes before it, many of the findings were relatively limited or hard to measure and there was huge variability in the changes that were implemented and in the impact of these changes on teachers' thinking and practice and student outcomes. This is consistent with other school reform research. In the words of Richard Elmore (1996):

> We can produce many examples of how educational practice
> could look different, but we can produce few, if any,
> examples of large numbers of teachers engaging in these
> practices in large-scale institutions designed to deliver
> education to most children. (p. 11)

Although many innovations have made their way through various educational systems, they often failed to have a fundamental impact on schooling. QTR&D was designed in the hope of identifying promising avenues for professional learning to stimulate widespread change, with the promise of system application to address the seemingly intractable issue of Māori and Pasifika underachievement. It has succeeded in establishing a range of examples and possibilities that hold promise for future directions. In this summary, we have tried to highlight the successes and to identify the challenges that are inherent in such a multifaceted and profound undertaking.

Implementation in 9 Hubs

The QTR&D programme was successfully implemented in 9 Hubs across three language settings (English, Samoan bilingual, Māori), with over 100 teachers enrolled in courses at one of 5 different universities. These teachers not only participated in graduate or post-graduate study but were supported by Research Facilitators to examine their own teaching practice with Māori and Pasifika students and produced a research/inquiry report of their work.

Extensive Collection of Resources and Readings

Each of the Hubs has developed and used a wide range of useful resources and readings that can form the basis of a compendium of materials for use in similar programmes. The course outlines are replete with reference lists and the Research Coordinators', Research Facilitators' and teachers' reports contain many additional references. Across the Hubs there is an extensive list of national and international resources and articles related to cultural responsiveness, practitioner research and quality teaching for diverse learners. This material could be collated and made available to others addressing the same issues.

Identifying and Recruiting Participants

The original intent in QTR&D was to locate teachers who had been involved with previous Ministry professional development initiatives and had developed the necessary knowledge, skills and dispositions within their designated curriculum area, to conduct inquiry into their own practice with a view to improving learning outcomes for Māori and Pasifika students. Finding these people proved to be a difficult task and many of the participating teachers, although eager, required more support than was anticipated in foundational areas of teaching. It is not clear what criteria might be used to identify ideal candidates for the kind of professional learning that is envisioned within QTR&D. Nevertheless, deciding who should participate in intensive professional learning is likely to be a complex task that requires careful consideration.

Because teachers in New Zealand are very much connected to particular school cultures and priorities, the school setting and goals are as important as the readiness of the candidates. Recruiting candidates requires a combination of locating promising contexts where the programme is consistent with school priorities and supportive leadership and familiarising individuals within these settings with the goals of such a programme, in order to garner interest and establish the conditions in the schools to support and foster the learning programme.

Situating Intensive Professional Learning Programmes

QTR&D was intended to provide the best of academic courses and ongoing support to the participants through a focused professional learning experience that also resulted in credits towards a graduate or post graduate degree. This structure was both an advantage and a disadvantage. Being part of a tertiary course meant that the teachers involved were earning credits towards an advanced degree and they had access to high quality lecturers and university resources. They were also bound by university timelines and rules that made enrolment and some elements in the programme difficult. Although some of the Hubs experienced frustration with the bureaucracy of

tertiary institutions, other universities were able to streamline the process and these are likely issues that could be addressed if there was a long-term agreement with tertiary institutions.

Of more importance is the fact that QTR&D comprises much more than one or two university papers. It is an integrated package that requires the engagement of schools, communities, lecturers, and on-site Research Facilitators, working together over an extended period of time to provide a wide range of learning opportunities. This ongoing individual support provided to participants was an essential part of the process as experts and allies in the teachers' change process who guide and lead the teachers towards routine collaborative inquiry that happens every day, not just at the university in a paper. This raises the question of whether tertiary institutions are the ideal setting for an extended professional learning programme. It is even uncertain whether tertiary institutions would or could offer a professional learning programme like QTR&D if it were not funded by the Ministry of Education.

The Importance of Support

Changing beliefs and practices is hard work. Most often, even if people realise that something needs to change, they "don't know what they don't know" and may be reluctant to pursue new learning alone. In fact, the most comfortable position is generally to preserve and conserve the status quo. However, dissonance and disequilibrium are critical prerequisites to new learning and it is hard to get there without help to push beyond the comfort zones. QTR&D was designed and delivered in a way that was very supportive of the participating teachers, while also challenging them to change their beliefs and their practices.

Throughout the programme teachers were supported by the Research Facilitators most of whom provided regular and personalised support to help the teachers integrate their learning in the tertiary course with their classroom practice and to undertake their research/inquiry project. In some cases they served as "critical friends" – trusted people who ask provocative questions, provides data to be examined through another lens, and offer critique of a person's work, as friends (Costa & Kallick, 1995, p. 154). In this role they could challenge assumptions, beliefs or simplistic interpretations in non-judgmental and helpful ways, remind the participants of what they had accomplished and facilitate their movement towards the next goals. This support was an essential element in QTR&D that created an environment for experimentation and reflection, in which teachers felt safe engaging in new learning and practices.

Partnerships and Relationships

QTR&D focused on partnerships and relationships across various groups to create the social capital to move the principles of QTR&D forward within and beyond the programme. The programme facilitated the development of some relationships with the potential to have lasting influences for professional learning for teachers of Māori and Pasifika students and it was less successful in establishing models of other relationships that could be productive.

The partnership between the Ministry and universities has shown that it is possible, although sometimes logistically problematic, to combine professional development for teachers with

graduate or post-graduate courses. These partnerships have also helped to highlight Ministry documents and policies in the tertiary sector, albeit with a limited number of the faculty. Of more significance is the number of tertiary personnel who worked together within and across the universities in QTR&D. Relationships have been established that were not only very productive in sharing and extending expertise but are also likely to continue in other initiatives related to and investigating professional learning for teachers.

Relationships among the participating teachers within QTR&D were less evident and, in most cases, they were unlikely to become lasting contacts that would move professional learning forward over time.

New relationships were evident between students and students and teachers and students in a small number of classrooms. These changes had a powerful effect on individual teachers and will probably affect their practice in the future. However, this kind of activity was limited across the programme as a whole and is unlikely to have widespread influence on other teachers or schools.

Relationships between teachers and communities, especially with parents and whanau, did not figure in most of the participating teachers' projects, except as resources to support the content of the curriculum. They were even sometimes considered to be difficult to establish and to manage.

Impact on Teachers and Students

Many of the participating teachers reported new learning and insights that caused them to rethink their assumptions and their practices. In many cases, the teachers experimented with new approaches and activities as part of their inquiry project. However, there was great variability across Hubs and within each Hub in the depth and potential impact of the changes that teachers undertook in their classrooms.

There is some limited evidence that the changes made by teachers' influenced the Māori and Pasifika students in their classrooms but it is not clear whether these changes were sustainable for these students or if continuing with these practices would be sufficient to contribute to the achievement and success of other Māori and Pasifika students over time.

Teacher Learning Through Inquiry

Teacher inquiry (or action research) is focused on the role that teachers play as knowledge-generators (Robinson, 2003). This process provides a vehicle for teachers to untangle some of the complexities that occur in the profession and is a critical contributing factor to improving the quality of teaching and learning outcomes for all learners.

The courses within QTR&D were action research courses that introduced teachers to a process of examining an existing problem; intervening with actions to improve practice; and monitoring the effects of the action through data collection and analysis. The courses and research/inquiry assignments in all of the Hubs focused on teachers studying about teaching for diverse learners and using this new knowledge to change and investigate their own practices. This approach certainly focused teacher attention on their work with students. However, the inquiry

cycle that has emerged from the Professional Learning and Professional Development Best Evidence Synthesis moves the process of teachers investigating their practice even closer to students (Timperley et al., 2008). This inquiry cycle begins with a consideration of student learning needs, moves to an explicit articulation of the relationship between teacher practice and student learning in relation to the student learning requirements, and charts a course for professional learning that will deepen professional knowledge and translate into focused changes in practice for those students.

Action research and focused inquiry both contribute to professional learning for teachers. However, if the goal is enhanced learning for students, focused inquiry begins with the students and focuses the teachers' learning and investigation of practices to students' needs directly.

We raise the question, therefore, of whether the inquiry projects undertaken were focused enough or were sufficiently presented as the core business of a professional teacher, as opposed to being considered as "research" projects that are required in tertiary study. Although the label "research" gives recognition to the effort involved, when participating teachers perceive the inquiry process as something uniquely associated with a university course it may have an unanticipated consequence of reducing teachers' realisation that inquiry, particularly collaborative inquiry is an important new skill that should be embedded in their professional practice if outcomes for students are to improve.

Collaborative inquiry is a systematic process for learning in which a group works together in repeated episodes of reflection and action to examine and learn about an issue that is of importance to them. Engaging in collaborative inquiry allows educators to work together searching for and considering various sources of knowledge (both explicit and tacit) in order to investigate practices and ideas through a number of lenses, to put forward hypotheses, to challenge beliefs, and to pose more questions. It is the foundation of conceptual change as individuals come across new ideas or discover that ideas that they believe to be true don't hold up when under scrutiny. Although many different forms of collaboration were evident in the QTR&D Hubs, only a few groups appear to have moved from what Warren Little (1990) calls "sporadic contacts and idiosyncratic affiliations among peers" to "joint work of a more rigorous and enduring sort" that is likely to produce genuine new knowledge for the teachers involved. By recognizing the natural human propensity for assimilation, it is possible to understand just how difficult "inquiry", as a need for deep understanding, truly is. Deep understanding very often means much more than confirming what is already known as tacit knowledge (or what people think they know). It means *changing* what people think and know. Inquiry involves changing the filter in a way that fits the evidence, not just engaging with the evidence in a way that fits the filter. This is the hard work of conceptual change. It means learning to live with the ambiguity and the feeling of dissonance when tacit knowledge and evidence are incompatible and recognizing that this kind of psychological discomfort is necessary to new understanding.

Having teachers engage in a single action research or inquiry project is unlikely to result in widespread change. The long-term strength of action research and the focused inquiry cycle

appears when they become a way of doing business, a way of thinking, a *habit of mind*, rather than discrete events. For collaboration to enable routine knowledge creation and sharing, practitioners need forums to make their knowledge accessible and explicit, and then to subject it to scrutiny and challenge from evidence and argument and external expert facilitation in the particular area of focus.

Cultural Responsiveness

Responding to the unique cultural reality of individual students is a complicated and sometimes problematic undertaking that is not well-established in education. Teaching generally occurs with a class of students and teachers use their own mix of activities and materials, adjusted to suit their understanding of what their students need. Cultural responsiveness is much more than introducing myths or metaphors into classes. It means interacting with the students and their families to truly understand their reality; it means understanding the socio-political history and how it impacts on classroom life; it means challenging personal beliefs and actions; and, it means changing practices to engage all students in their learning and make the classroom a positive learning place for all students.

QTR&D did not impose a specific definition of cultural responsiveness beyond the principles that 'culture counts' and "culturally inclusive and responsive learning communities". The differences among the QTR&D Hubs in their methods for and attention to cultural responsiveness demonstrate that being responsive to culture as a mechanism for enhancing students' learning is complex and challenging. The approach, and even the orientation to responding to culture, was grounded in each Hub by the literature and current theories espoused in the curriculum area and demonstrated the lack of a shared understanding of this complex notion, even among providers.

Given the variability in interpretation and approach to cultural responsiveness across the QTR&D Hubs, this appears to be an area that requires considerable further attention and study to clarify the concept and engage the teaching profession in ongoing dialogue about what it means to be responsive to culture, what it might look like in practice, what pitfalls exist for teachers as they pursue this direction and what kinds of supports are necessary to facilitate cultural responsiveness. The QTR&D programme was able to make an initial foray into this area that provides a basis to be built on in future.

Scope of the Programme

The QTR&D programme was very ambitious and the challenge of the endeavour may have been underestimated in a number of areas. All of the Hubs found the QTR&D programme ambitious and challenging to deliver in a bounded time frame. The major concepts within QTR&D (partnerships, quality teaching, responding to culture and collaborative inquiry) are all major areas for learning and for change. Several of these concepts, cultural responsiveness and collaborative inquiry, are relatively rare in education and there is considerable evidence that they require teachers to develop quite important but challenging new skills that require a good deal of new learning, reflection and practice to become automatic ways of working. The participating teachers

undertook a single research/inquiry project that introduced them to a process and some new skills, but this was not sufficient for them to become routine inquirers, always interrogating their own practice in relation to their students and the curriculum. Cultural responsiveness is much more than sharing traditions; it is also a way of being and of thinking that requires teachers to confront their own personal beliefs and their relationships with students and with communities, as well as learn new customs and new language.

The other QTR&D concepts, partnerships and quality teaching, also proved to be more difficult that might have been anticipated. Many of the teachers found themselves lacking content and pedagogical knowledge in the curriculum areas, and some were even unsure of the curriculum itself. They were constantly building their teaching and assessment repertoire, as well as working on responding to the cultural realities of their Māori and Pasifika students. QTR&D did create some important partnerships within the programme, especially across tertiary personnel in Hubs. The intent was also to engage the community, as a mechanism for enhancing relationships and connecting student's disparate worlds. In this realm, there was little evidence that the QTR&D programme inspired many connections or links with communities that were likely to extend beyond a short contact for a particular purpose.

Given the complexity and challenge of embedding these important ideas into a single programme, the QTR&D programme provided the participants with a "taster" of ideas and processes that positioned them to begin the journey of collaborative inquiry and cultural responsiveness. However, it is clear that none of the concepts could be explored and experienced in depth in a short time frame and can only be addressed in a systemic programme over an extended period of time.

Developing a Knowledge Base

One of the key goals of QTR&D was learning from the pilot study and sharing the learning with others beyond the participants. Although QTR&D was a worthwhile professional learning project that provided over 100 teachers with exposure to new ideas and created the experiences for them to develop professionally, this was an individual process, rather than a collective knowledge-building one. Within several of the Hubs, the teachers' stories have been collected, edited and collated for sharing with other groups and there are some plans for broader sharing but, at the time of writing, it is unclear how much additional dissemination there will be.

We hope that the dissemination of learning from this evaluation and from the reports produced by the Research Coordinators and Research Facilitators can capture the big ideas in ways that can be shared more broadly to stimulate discussion and provide the foundations for future programmes.

Summary

QTR&D was initiated with the realisation that large-scale educational change is challenging and multifaceted, especially given the importance and range of dimensions that were included in the programme. Each Hub entered into the programme wholeheartedly and mounted a valuable

learning experience for the participating teachers. They also found that deep and widespread change is hard to achieve. It is clear that without thoughtful attention to the underlying theoretical and logistical issues, it is very difficult to create the kinds of conditions and experiences for teachers to genuinely learn together and change their practices, individually and collectively to support learning for Māori and Pasifika students. At its foundation, QTR&D was intended to change the hearts, minds and behaviours of the participating teachers. There is certainly evidence of some of these changes, with some of the participants, but there was tremendous variability and it is not clear how much change will be sustained over time. Nevertheless, QTR&D has provided incredible insight into the complexity of changing practices in ways that will have a significant and sustained influence on Māori and Pasifika students.

CHAPTER 1 WHAT IS QTR&D?

The Quality Teaching Research and Development Programme (QTR&D) was mounted by the New Zealand Ministry of Education in 2005 as a pilot development and research project to understand more about quality teaching for Māori and Pasifika students, within designated contexts (literacy, numeracy, social studies and science) and across different language medium settings (English Medium, Māori Medium & Samoan bilingual teaching settings). In June 2003, Cabinet agreed that effective teaching for all students should be a key priority for schooling for the next three years (CAB Min (03) 22/6). The Quality Teaching Research and Development Project contributes to the achievement of the strategy approved by Cabinet, in particular *"implementing key new initiatives that will drive further development of knowledge about quality teaching and help to improve teaching practice"*. QTR&D was designed specifically to add to the knowledge base about the particular mix of strategies needed to ensure Maori and Pasifika students achieve well in literacy, numeracy, science and social studies.

QTR&D was a Ministry supported professional learning mechanism for improvement. The Ministry provided funding for tertiary providers to offer graduate or post-graduate courses for teachers, specifically targeted at improving teaching and learning for Māori and Pasifika students. Its stated goals were to:

- enable teachers to improve the quality of teaching and learning outcomes for their Māori students and Pasifika students across literacy, numeracy, social studies and science contexts through collaborative inquiry / research and development processes;

- enable teachers to develop pedagogical practices that enable classes and other learning groupings to work as caring, inclusive and cohesive learning communities;

- create links between school and other cultural contexts in which students are socialised to facilitate learning;

- contribute to the evidence base and inform policy decisions about what works to support quality teaching and improved Māori student and Pasifika student learning outcomes in literacy, numeracy, social studies and science.

The purpose of QTR&D was aptly stated at an early planning hui:

> *QTR&D is a Research and Development Model that seeks to 'step up to the challenge' by improving the quality of teaching (within English Medium, Māori Medium and Samoan bilingual/bi-literacy) and improve learning outcomes for Māori students and Pasifika students across literacy, numeracy, social studies, science, tikanga-ā-iwi and pūtaiao.*

QTR&D emphasised a number of key policy directions (i.e., culture, pedagogy, partnerships, professional learning, and utilizing evidence). The tertiary providers established programmes to move these ideas into practice by establishing the conditions for teachers of Māori and Pasifika students to engage in a professional learning programme focussed on quality teaching

for diverse students in a specific curriculum area that included university papers, in-school support for the teacher participants, and teacher inquiry.

QTR&D was offered in nine research and development Hubs[1], seven Hubs in English Medium teaching settings (1 English Literacy, 1 Mathematics, 3 Social Studies, 2 Science) one Hub within a Māori Medium teaching setting (Tikanga-ā-iwi) and one in a Samoan Bilingual teaching setting (Samoan/English Literacy). A Research Coordinator and Research Facilitator(s) from within the tertiary sector designed and delivered the programme in each Hub. The teachers participating in QTR&D were enrolled in a QTR&D university course in one of the targeted curriculum areas that included classes, in-school support and a research paper. They were also engaged in a process to reflect on their learning and in writing a narrative about their experiences.

An important feature of QTR&D was the requirement to chronicle the learning at all levels. The teacher participants were required to complete a university course and to present their inquiry project to their classmates and lecturers. The Research Facilitators in each Hub were also expected to prepare reports summarising the work of the Hub and their own research undertaking. Finally, the Research Coordinators prepared summary reports for the English Medium, Samoan Bilingual and Māori Medium settings. These reports provide a detailed account of the work of QTR&D that can be shared broadly with others who are interested in creating effective conditions to enhance the learning of Māori and Pasifika students.

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[1] The project design included two Māori-medium Hubs, but the second one was discontinued due to unforseen circumstances.

CHAPTER 2 THE EXTERNAL EVALUATION

The QTR&D pilot was intentionally designed as a development and research programme that engaged the participants in the inquiry process and that provided evidence about the programme, so that the Ministry and others could learn from the experience, in order to inform future directions. It was an exploratory investigation designed to "try out" complex approaches to enhancing learning for Māori and Pasifika students, based on what had already been learned from a number of research and development projects (e.g., Te Kauhua, Te Kotahitanga).

This external evaluation was commissioned by the Ministry of Education to provide an overarching investigation of QTR&D, with particular attention to significant issues that cut across the whole QTR&D programme, and to consider these issues in relation to larger questions of policy or practice that are likely to permeate decisions in a range of programmes and contexts in future. The intent is to draw on the experiences of QTR&D to help inform the work of others in their educational change efforts.

Because the principal evaluator comes from Canada, she enlisted several academics from New Zealand to assist with the conceptualisation and analysis of the data from the evaluation. The evaluation team was also supported in New Zealand by an Evaluation Advisory Committee[2]. This group made an invaluable contribution to the evaluation process by reviewing and amending the initial plan, refining the evaluation questions, serving as the ethical review committee, engaging in conversations about the measurement and analysis of key concepts, considering and amending drafts of the evaluation report, and providing advice along the way.

This evaluation does not duplicate the work of the Research Facilitators and Research Co-ordinators who are conducting their own research in relation to QTR&D. Instead, the evaluation team has drawn on their work and collected additional data to provide a broad-based account of the complexity of the QTR&D programme as a whole. Quotes and comments from the various reports are not comprehensive. They have been selected to exemplify ideas that emerged from the evaluation.

Evaluation Questions

The Evaluation Advisory Committee worked with the Evaluation Team to refine a set of evaluation questions specific to this overarching evaluation and identify the central analysis strategy. The following evaluation questions have guided the evaluation, along with an analysis strategy of focusing specifically on four core concepts - Partnerships, Cultural Responsiveness, Quality Teaching and Collaborative Inquiry.

1. How is the QTR&D project being interpreted and implemented in the various Hubs?
2. What activities and processes have facilitated and/or constrained the implementation and influence of QTR&D?

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[2] Members of the Evaluation Team and the Evaluation Advisory Committee are listed in Appendix A.

3. How and to what extent has involvement in QTR&D influenced the nature and quality of partnerships to support student learning?

4. How is cultural responsiveness understood and being enacted in the QTR&D project?

5. How is collaborative inquiry understood and being enacted in the QTR&D project?

6. How and to what extent does the QTR&D project support the learning needs of students through addressing the learning needs of teachers (cultural responsiveness, curriculum alignment, pedagogical knowledge, assessment and feedback, and pedagogical content knowledge)?

7. What evidence is there of the impact on teacher thinking and practice?

8. What evidence is there of the impact on student outcomes?

9. How robust is the evidence of impact for building a knowledge base about what is effective in relation to improving learning outcomes for Māori and Pasifika students?

It is important to note that the evaluation questions address elements of the QTR&D programme separately but they are not independent entities. QTR&D is a complex interconnection of a range of theories that, taken together, have promise for deep change in practice in order to serve all students well.

Framework for the Evaluation

This evaluation considers QTR&D as a multifaceted professional learning approach that involves partnerships, quality teaching for diverse students, collaborative inquiry and attention to culture. It draws on the literature in all of these domains to frame an understanding of each of these areas and of the complexity of their integration in a single programme.

Professional Development and Professional Learning

Over the past several decades there has been a great deal of attention to professional development for teachers and to understanding how to organise professional learning experiences so that they actually influence changes in teachers' thinking and practice in ways that are likely to influence student outcomes. Unfortunately, these efforts have often only accomplished superficial changes to practices that have not easily translated into sustainable improvement for student learning (Hargreaves, 2003). In the recent report titled *'Best Evidence Synthesis: Professional Learning and Professional Development'*, Timperley et al., (2008) consolidated the international and New Zealand evidence around the emerging knowledge base about how to promote the learning of experienced teachers in ways that impact on outcomes for the diversity of students in classrooms. In a summary of this work for the International Academy of Education, Timperley (2008) describes 10 principles for professional learning and development that impacts positively on valued student outcomes:

1. **Focus on valued student outcomes**: Professional learning experiences that focus on the links between particular teaching activities and valued student outcomes are associated with positive impacts on those outcomes.

2. **Worthwhile content:** The knowledge and skills developed are those that have been established as effective in achieving valued student outcomes.

3. **Integration of knowledge and skills:** The integration of essential teacher knowledge and skills promotes deep teacher learning and effective changes in practice.

4. **Assessment for professional inquiry:** Information about what students need to know and do is used to identify what teachers need to know and do.

5. **Multiple opportunities to learn and apply:** To make significant changes to their practice, teachers need multiple opportunities to learn new information and understand its implications for practice. Furthermore, they need to encounter these opportunities in environments where there are both trust and challenge.

6. **Approaches responsive to learning processes:** The promotion of professional learning requires different approaches depending on whether new ideas are, or are not, consistent with the assumptions that currently underpin practice.

7. **Opportunities to process new learning with others:** Collegial interaction that is focused on student outcomes can help teachers integrate new learning into existing practice.

8. **Knowledgeable expertise:** Expertise external to the group of participating teachers is necessary to challenge existing assumptions and develop the kinds of new knowledge and skills associated with positive outcomes for students.

9. **Active leadership:** Designated educational leaders have a key role in developing expectations for improved student outcomes and organising and promoting engagement in professional learning opportunities.

10. **Maintaining momentum**: Sustained improvement in student outcomes requires that teachers have sound theoretical knowledge, evidence-informed inquiry skills, and supportive organisational conditions.

Relationships and Partnerships

The idea of partnerships among key players in supporting the education of young people is not new. Schools and their communities, governments and universities already have many connections that take a range of forms (e.g., funding agreements, research contracts, pre-service education, graduate study, post-graduate study, school support). In the case of QRT&D the focus is on providing resources for tertiary institutions, the Ministry, schools and communities to work together to enhance student outcomes.

When individuals and groups work in partnerships over time they can often exceed what any of them could accomplish alone. The relationships that develop create a common language and a sense of shared responsibility, provide channels for communicating and disseminating information to one another about network members' expertise, and develop readiness to trust one another (West-Burnham & Otero, 2004).

Trust is a key condition of productive relationships (Bryk et al., 1999), at least a base level of such trust that allows a professional community to emerge. In relationships, conflict is inevitable,

but robust and trusting relationships amongst members can allow them to work together even when they have different orientations and views (Lieberman & Grolnick, 1996).

Quality Teaching for Diverse Learners

Quality teaching for diverse learners is defined as pedagogical practices that facilitate all students' access to information and ability to engage in classroom activities and tasks in ways that facilitate learning related to curriculum goals (Alton-Lee, 2003). It encompasses many dimensions of teacher knowledge and teacher practice (e.g., content knowledge, pedagogical knowledge, pedagogical content knowledge, assessment, curriculum alignment) and occurs in a range of ways from direct interaction with students to the cumulative pedagogical actions of a teacher in creating an effective learning environment. In *'Best Evidence Synthesis: Quality Teaching for Diverse Learners'* (a synthesis of research findings of evidence linked to student outcomes) Alton-Lee identified 10 characteristics of quality teaching:

1. Quality teaching is focused on student achievement (including social outcomes) and facilitates high standards of student outcomes for heterogeneous groups of students.

2. Pedagogical practices enable classes and other learning groupings to work as caring, inclusive, and cohesive learning communities.

3. Effective links are created between school and other cultural contexts in which students are socialised, to facilitate learning.

4. Quality teaching is responsive to student learning processes.

5. Opportunity to learn is effective and sufficient.

6. Multiple task contexts support learning cycles.

7. Curriculum goals, resources including ICT usage, task design, teaching and school practices are effectively aligned.

8. Pedagogy scaffolds and provides appropriate feedback on students' task engagement.

9. Pedagogy promotes learning orientations, student self-regulation, metacognitive strategies and thoughtful student discourse.

10. Teachers and students engage constructively in goal-oriented assessment.

Collaborative Inquiry

Collaborative inquiry is an inquiry process in which educators study and reflect together searching for and considering various sources of knowledge (both explicit and tacit) in order to investigate practices and ideas of importance to them through a number of lenses, to challenge beliefs, and to pose more questions (Katz, Earl & Ben Jaafar, in press). It rests on a foundation of three interrelated concepts: relationships, collaboration, and inquiry and merges deep collaboration in the form of rigorous and challenging joint work with inquiry, and is consistent with Little's (2005) reference to a large body of research suggesting that conditions for improving learning and teaching are strengthened when teachers collectively question ineffective teaching routines, examine new conceptions of teaching and learning, find generative means to acknowledge and

respond to difference and conflict, and engage actively in supporting one another's professional growth. At the heart of focused collaborative inquiry is the recognition that it is a *methodology* for the necessary professional learning in the focus area. That is, collaborative inquiry is not the end. It is a tool in the service of the professional learning to build the kind of knowledge that will change classroom practice in a way that responds to the student learning needs.

In New Zealand, the recent *Best Evidence Synthesis: Professional Learning and Professional Development* (Timperley et al., 2008) provided a model for focused inquiry based on its power to influence student learning (Timperley, Wilson, Barrar & Fung, 2008).

Professional Learning Inquiry Cycle
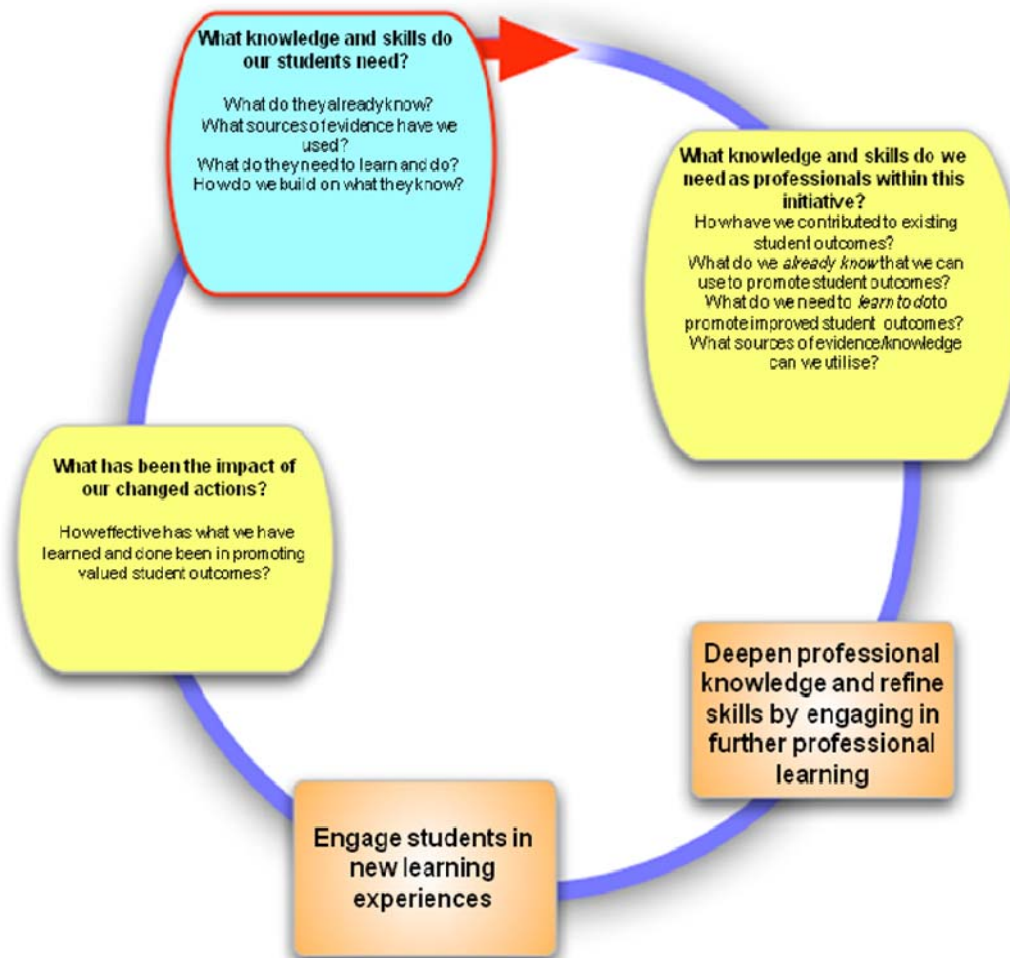
This cycle begins with a careful consideration of evidence related to individual and collective student learning needs, moves to an explicit articulation of the relationship between teacher practice and student learning in relation to the student learning requirements, and charts a course for professional learning that will deepen professional knowledge and translate into changed practice. The process is cyclical, but forward-moving, as the impact is assessed in relation to the new practices, leading back into a reconsideration of student learning needs.

This process is strengthened when teachers work together to assess students' needs, draw on research and expertise to inform practice, engage in professional learning experience, work together to develop plans for teaching and learning, monitor the initiatives to see how they are working and talk openly with colleagues about differing views as a mechanism of gaining clarity (Katz, Earl & Ben Jaafar, in press).

Collaborative inquiry is a high leverage practice but it involves a set of skills and dispositions that are new to many educators who often need to acquire a critical new set of skills in order to work together on serious issues that require investigation, reflection and challenging of ideas. Moderate professional conflict lies at the heart of collaborative inquiry. It is inevitable that there will be discomfort and dissonance when tacit knowledge and understanding is made explicit through collaborative discourse. This dissonance is a necessary part of any process that challenges thinking and practice.

Several established methodologies promote collaborative inquiry (e.g. action research, lesson study and the collaborative analysis of student work) by creating the conditions to push the participants towards higher-order forms of collaboration, the kind of joint work that challenges thinking and practice.

Responsiveness to Culture

Although researchers within New Zealand have been investigating issues of diversity and culturally responsive teaching for Māori and Pasifika students, there is considerable variability in the way that these concepts have been interpreted and applied. Cultural responsiveness is not a new idea. It is a widely held view, rooted in literature about improving academic achievement of students who are not part of the dominant group, and based on the assumption that:

> "A firm grounding in the heritage language and culture indigenous to a particular tribe is a fundamental prerequisite for the development of culturally-healthy students and communities associated with that place, and thus is an essential ingredient for identifying the appropriate qualities and practices associated with culturally responsive educators, curriculum, and schools" (Alaska Native Knowledge Network, 1998).

The *Quality Teaching for Diverse Students in Schooling: Best Evidence Synthesis* (Alton-Lee, 2003) embeds culture and cultural responsiveness in a broader framework of quality teaching, with references to a number of issues related to culture, including: teacher expectations and assessments of capability; the heterogeneity of learners in classrooms in New Zealand; structures for caring, opportunities for collaborative learning and appreciation for diversity in classrooms; teachers' representation of the class community to the students, and with the students, in ways that do not exclude by ethnicity, gender, dis/ability, social class background or sexuality; curriculum-relevant tasks that disrupt hierarchies developing between students and enable diverse valuing of student knowledge and skills; cultural norms of whanaungatanga, awhina and tuakana/teina to support students' cultural identity, social development and achievement; teachers' ability to move

beyond a limited cultural or deficit perspective on diversity, based on their own cultural experiences; teacher agency in mediating links between the different contexts in which students are socialised, through inclusive pedagogy; links between schools and families to support students learning.

Te Kauhua is a professional learning programme that uses action research to increase schools' knowledge and understanding about effective links with whānau in ways that contribute to enhanced outcomes for Māori students. Te Kauhua is premised upon the belief that for teacher change to be sustainable it must be grounded in authentic practice settings that are facilitative and enable teachers' critical reflection on challenges in their beliefs about Māori culture and identity. It suggests that teachers modify and develop their practice, enveloping whānau in the process.

Bishop & Glynn (1999) describe an alternative model of relationships and pedagogy in schools where previously marginalised people can successfully participate. Much of what they put forward has been incorporated into Te Kotahitanga, a research and development programme committed to establishing a culturally responsive pedagogy of relations in 'English-medium secondary school classrooms. This programme supports teachers in understanding students as culturally located individuals; having high expectations of the learning for students; managing their classrooms so as to promote learning; engaging in a range of discursive learning interactions with students or helping students to engage with others in these ways; knowing a range of strategies that can facilitate learning interactions; promoting, monitoring and reflecting upon learning outcomes that in turn lead to improvements in Māori student achievement and sharing this knowledge with the students. Some teachers who have participated in Te Kotahitanga have undergone a philosophical shift in the way they think about teaching and learning and there have been improvements in the achievement of Māori students in the classes of participating teachers (Bishop, Berryman, Cavanagh & Teddy, 2007).

In terms of 'culturally responsive teaching' for Pasifika learners, Samu (2004) presents the argument that teachers of Pasifika learners require a framework of guiding principles, with the first principle based on the teachers' development of their understandings of Pasifika learners in order to better recognise and bridge a range of complex social and cultural gaps and even mismatches. In particular, there are substantial issues and "unknowns" around what is happening to Pasifika students' development in both their home or heritage language and English, and how these relate to literacy especially in reading comprehension in either language (McNaughton, Airini & Amituanai-Toloa, 2003). These issues are made more complex with the presence of different forms of bilingual education provision and a lack of teacher knowledge of effective teaching for diverse students.

Data Collection and Analysis

The data for this evaluation came primarily from documents submitted to the Ministry in relation to the QTR&D programme, supplemented by attendance at Research Facilitators and Research Coordinator meetings, visits to several Hub presentations and follow up interviews with 9 key informants (Research Coordinators, Research Facilitators or RTLBs) from within the

programme to clarify areas of uncertainty. The documents included in the analysis were Request for Proposals (RFPs), contracts, course outlines, milestone reports and responses, research reports from the Research Coordinators and the Research Facilitators and teacher case studies or research reports. Although the documentation was quite comprehensive, there is always a limitation associated with working from documents. Because no follow up interviews were done with teachers, it is possible that their papers did not capture all of the activities and learning from the projects.

The evaluation team received the documents related to the QTR&D programme from the Ministry of Education and coded them using the qualitative analysis software NVIVO7, using a coding scheme based on the evaluation questions, sub-questions and analysis strategy agreed by the Evaluation Advisory Committee[3].

This Report

This remainder of this report is organised around the evaluation questions approved by the Evaluation Advisory Committee. Chapter 3 describes the implementation of QTR&D in each of the Hubs. Chapters 4-7 include descriptive findings for each of the four core concepts: partnerships, inquiry, cultural responsiveness, and quality teaching. In Chapters 8 and 9, we examine the evidence related to the impact of QTR&D on teachers' thinking and practice and on student learning. Chapter 10 describes successes and challenges within QTR&D. The final chapter addresses what has been learned from QTR&D with implications for policy and practice decisions.

Throughout the report, we have inserted quotations from the various documents to provide illustrations of the ideas. These quotes describe activities that have occurred within QTR&D. It is important to note that these quotes are drawn from reports and projects where this kind of activity is highlighted, but this is not intended to suggest that these activities are evident in all QTR&D Hubs or classrooms. Sometimes these comments represent the thinking or the work of a single teacher. In many cases, there was no mention of the issues being described. We have included the quotes to provide examples of ways that some participants have interpreted and implemented the ideas within QTR&D and offer images of possibilities for future policy and practice and, in some cases, we have included a number of quotations because they provide a detailed description of the complexity and richness of the range of possibilities. Nevertheless, they are merely examples and not indications of widespread practice. In the text of the various sections, we have drawn attention to the extent to which these kinds of activities were evident across Hubs and across the QTR&D programme.

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3 The evaluation questions and sub-questions are presented in Appendix B.

CHAPTER 3 INTERPRETATION AND IMPLEMENTATION OF QTR&D IN THE HUBS

The tertiary providers, as well as the Research Coordinators and Research Facilitators entered into separate contracts with the Ministry of Education to create a QTR&D programme. Although they were separate contracts, the expectations and deliverables were very similar across institutions with an expectation that QTR&D programme would include a focus on quality teaching for diverse learners, cultural responsiveness, and a teacher inquiry role. The guiding principles of QTR&D were:

- A recognition that 'culture counts'
- ako (reciprocal teaching and learning)
- productive partnerships and co-construction of knowledge / learning processes
- multiple, structured opportunities to learn
- high quality evidence-based practices linked to enhanced Māori student and Pasifika student outcomes
- collective inquiry processes which engage teachers' personal theories; and
- culturally inclusive and responsive learning communities.

Although they were founded on the same principles, different Hubs organised their programme in different ways. This section describes the design and implementation of the various Hubs in relation to the teachers and their schools, the QTR&D programme as it was delivered in the Hubs and the teachers' experience of the QTR&D programme.

The Teachers and Their Schools

Research Facilitators in the Hubs were responsible for locating teachers who would be good candidates for the QTR&D programme. The initial plan was to locate a cadre of 'poised' teachers – teachers who had been involved with previous Ministry professional development initiatives and had developed the necessary knowledge, skills and dispositions within their designated curriculum area, to conduct inquiry into their own practice with a view to improving learning outcomes for Māori students and Pasifika students. Although the intention was to have 20 participants in each Hub, the actual number enrolled was somewhat fewer and many of the actual participants had not been actively engaged in other professional development programmes. The teachers who were enrolled ranged in experience and background from novice (fewer than 3 years teaching) to very experienced (over 20 years teaching) who were currently teaching in classes that contain Māori and/or Pasifika students or in Māori medium schools, or were in positions of support for schools.. Teachers in the Māori-medium Hub were all from a number of schools. The Samoan Bilingual teachers came from several schools. The English medium literacy teachers included teachers from four schools. There were Samoan bilingual classes and Māori language enrichment classes in several of these schools. Teachers in the numeracy Hub came from a number of schools. The two science Hubs included teachers from a number of schools with most of them located in separate schools. The three social studies Hubs were located in three geographically

separate locations and drew teachers from a number of schools, although 65% (17 of 26) had a colleague from their school in the class.

QTRD Hubs – Curriculum Focus and Number of Teachers

Medium	Number of Teachers
Māori – Tikanga-ā-iwi	19
Samoan Bilingual – Literacy	12
English – Literacy	11
English – Numeracy	10
English – Science	9
English – Science	11
English – Social studies	9
English – Social studies	12
English – Social studies	10

In the Māori medium setting, all of the teacher participants were Māori and in the Samoan Bilingual, they were all Samoan. Teachers in the other Hubs represented a range of cultural backgrounds (e.g., Fijian, Indian, Samoan, Māori), although most were Pakeha. Many of the participants had completed a degree programme or were currently enrolled. Some were already taking post-graduate courses. A few, however, had not completed a degree and had limited experience of tertiary study.

The schools in which the teachers taught included primary, intermediate, middle, and secondary, with many of them low decile schools, although the complete range of schools were represented from decile 1 – 10.

The QTR&D Programme in the Hubs

Although the Hubs created their own programme models, there are a number of similarities and some notable differences across the Hubs and the settings. All of the Hubs were associated with a tertiary institution and university lecturers delivered the programme to the student[4]. Each Hub offered a programme with a particular curriculum focus (as detailed above) and included classes, on-site and/or on-line support, as well as a research investigation and paper. The Research Coordinators and the Research Facilitators associated with the Hubs provided additional materials, fielded questions, assisted with the research project and visited classrooms to observe and provide support.

In all Hubs the programme drew on the *Quality Teaching for Diverse Students in Schooling: Best Evidence Synthesis* (BES) (Alton-Lee, 2003) as a key resource underpinning

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[4] Not all of the personnel from tertiary institutions were tenured staff; some were contracted for this programme.

their planning and programme delivery. All of the Hubs integrated partnerships, quality teaching, collaborative inquiry, and cultural responsiveness within the course, the readings and the support from Research Facilitators but there were significant differences in emphasis and approach.

The Māori medium Hub was associated with the University of Auckland, utilising flexible special topic course numbers to tailor the programme specifically to the enrolled students. It included 2 semester-long courses (each 15 credits), with the first one focused on the theoretical background to action research and the second one centred on the teacher research project itself, and support to conduct and write-up the research. The goals of the programme were to develop and implement an action research plan for improving the achievement outcomes of students in Māori medium contexts; critically examine a theoretical and evidence base to inform an effective pedagogy; reflect critically on own learning and teaching and the learning of students; and orally and in writing critically reflect upon the process and outcomes of an action research project. The participants met for four 2-day wānanga (study meetings) in the first semester and the equivalent of 3 x 1-day wānanga in the second semester. Participants in this Hub examined a range of literature related to action research, social science, Tikanga-a-Iwi Curriculum, formative assessment and teaching Māori students. The programme assignments included: a research/inquiry proposal, a reflective journal and a research report/case study. An on-line support system provided journal, calendars, notice boards, resource and support folders for sharing and collaboration. Each Kaiako was assigned an RTLB, Māori Hub Coordinator or a Lead Teacher for in-class observations, feedback, help with goals and support to meet goals.

The course for the QTRD Samoan Bilingual Hub at the University of Auckland was associated with an existing full year course in teacher research within literacy, with tutorials and group discussions designed exclusively for Samoan Bilingual teachers. It was a two-semester course of 15 points each semester. The goals of the Samoan Bilingual Hub were to review and examine theoretical and pedagogical perspectives underpinning literacy and bilingual education; analyse personal practice relevant to literacy learning in bilingual contexts using an action research inquiry and conduct an action research inquiry within the relevant area of practice. The action research course was delivered on three Saturdays. The course had a focus on the reflective practitioner; supporting schools for effective literacy practices, working effectively with children: finding and presenting the evidence. Following the action research course sessions, the Samoan Bilingual group met for a tutorial and group discussion with the Research Coordinator and Research Facilitator focusing on specific content related to bilingual education. An additional session was included for this group to prepare for the research project. Running alongside the QTR&D course were reading and writing workshops conducted in the Mangere cluster of schools, which many of the Samoan bilingual teachers attended. The QTR&D Samoan bilingual participant teachers not in the cluster of schools receiving these workshops were paired up so that they had access to the content. Support was provided to this group by the Research Coordinator and the Research Facilitator who visited schools and maintained ongoing contact with the students. The required assignments for this course were a research proposal and a research report based on an

investigation done by the student. The literature base focused on links between reading and writing, second language learning, bi-literacy development and quality teaching for diverse learners.

The English Literacy Hub at the University of Auckland capitalised on an existing master's course across two semesters (15 points each semester) designed to equip practising teachers as action researchers in their own classrooms in order to further enhance student achievement, and provided it to the group of teachers, many of whom were already working with the university lecturers in a professional development programme focused on reading and writing for diverse learners being offered in schools in South Auckland. Others were recruited through personal contact. All teachers had high numbers of Māori and Pasifika students in the classes. This action research course, offered on three Saturday mornings, focused on the reflective practitioner; supporting schools for effective literacy practices, working effectively with children: finding and presenting the evidence. Running alongside the QTR&D course were reading and writing workshops conducted in a South Auckland cluster of schools, which most of the teachers attended. The QTR&D participant teachers not in the cluster of schools receiving these workshops were paired up so that they had access to the content. The goals of the Literacy QTR&D Hub were to review and examine relevant research and professional literature relating to specific questions in literacy education, to analyse one's own practice relevant to literacy learning contexts using a systematic approach to practice (action research inquiry) and to conduct an action research inquiry within the relevant area of practice. Achieving these learning outcomes meant that by the end of the course students would: be aware of the complex literacy needs in reading and writing of individual students; make literacy teaching meaningful and relevant; have a thorough knowledge of literacy resources; assume the professional role of a literacy specialist; be able to work with a range of communities; be able to use successful intercommunication skills; be able to implement an action research project; and examine their own practice critically and reflectively. Support was provided to this group by the Research Facilitator who visited schools and maintained ongoing contact with the students. The required assignments were a research proposal and a research report based on an investigation done by the student. The literature base focused on links between reading and writing, teaching and learning for students who speak a language other than English and quality teaching for diverse learners.

The English medium Hub in Numeracy was also provided through the University of Auckland. The course was a year long post-graduate/masters level course carrying 30 points credit and was made up of three modules – introduction to QTR&D and culturally responsive pedagogy, the nature of mathematics and collaborative action research and was held in six half-day face to face sessions and weekly on-line classes. Particular QTR&D aims/objectives associated with the Numeracy Hub were to enable teachers to improve the quality of teaching and learning outcomes for their Māori students and Pasifika students in numeracy contexts through collaborative inquiry processes; and develop pedagogical practices that enable classes and other learning groupings to work as caring, inclusive and cohesive learning communities; The course content included becoming familiar with the QTR&D project, acquiring a deeper understanding of Māori and Pasifika

learners, exploring culturally responsive pedagogy, examining the nature of numeracy/mathematics and the Mathematics Best Evidence Synthesis, understanding collaborative action research within a reflective framework and implementing an action research project. Support in this Hub was provided through e-mail contact, notes on the website and at least two on-site visits by the Research Facilitator to the teachers' classrooms. There were three required assignments – a research proposal, a reflective journal and a case study. This course utilised an extensive literature base with articles and resources in mathematics, teaching, learning theories and diversity (with particular attention to Māori and Pasifika).

There were two English Medium science Hubs; one at the University of Waikato and the other at the University of Canterbury. Although they operated separately, they worked together to consider course structure, readings and assignments, teaching and student work.

The University of Waikato customised an existing full year course to bring science education, cultural responsiveness and teacher research together. This course, Collaborative Inquiry Quality Teaching Research Project was delivered in five full day sessions and provided facilitated academic and professional development for the participants. Students were required to consider and synthesise the literature from four fields – culturally responsive pedagogies, practitioner research, the Quality Teaching BES and science education. The objectives of this Hub were for the teacher participants to develop: an understanding the role of scientific literacy, an appreciation of the nature of scientific inquiry as a cultural process, an understanding of some of the ideas children bring to the science classroom, an investigation of the impact of a research informed intervention on the science learning of Māori and Pasifika student, an understanding of the worldviews of the schools ' Māori and Pasifika communities, a recognition of differences in values, beliefs and preferred learning strategies of Māori and Pasifika students before engaging them in shared science topics and the capability to employ strategies such as whakawhanāungatanga, manaakitanga, tuakana-teina, ako and mana motuhake as ways of building effective working relationships with Māori and Pasifika students. The teachers in this course were supported through in-school visits from the Research Facilitator in the intervals between the teaching days, as well as e-mail and telephone contact with the lecturers. The participants completed four required assignments – a research journal, an annotated bibliography, a research proposal and a collaborative teacher and Research Facilitator stories that highlighted the learning outcomes for teachers and for students in their projects. This course included an extensive reading list including material related to cultural responsive pedagogies, practitioner research, and science education.

At the University of Canterbury, the science Hub also adopted an existing course and tailored it to QTR&D. The course was the equivalent of a 50-hour course (30 points) and occupied six full day sessions focusing on science and science education, teaching Māori and Pasifika students and classroom based research. The themes of this course included purpose (the purpose of science, the purpose of science education, the purpose of this project and its focus on Māori and Pasifika and the purpose of research methodology), culture (the culture of science, the culture of

science education, metaphors for Kaupapa Māori and Pasifika world view and the culture of classroom based research), scientific literacy, learning theories (emphasis on constructivism and socio-cultural theory and consequent teaching and learning approaches), and culturally congruent/ responsive pedagogies The Research Facilitator in this Hub provided support to the participants through e-mail, phone and face to face contact. There were two required assignments – a literature review and a final inquiry report based on the teacher's research project. This course included a range of resources and course readings across science education, addressing cultural needs and research on learning.

The three English-medium Social Studies Hubs at the University of Auckland, Victoria University and Massey University developed a course together, with Massey and Auckland Universities offering it as a special topic and Victoria University of Wellington aligning it within an existing paper. The courses included four face-to-face "reflection and planning days" in each Hub as well as a three module, on-line dialogue that extended over the university year. The course was a Masters level course carrying 30 points credit at Auckland and Massey. The Victoria University of Wellington paper was double the full-time equivalency of the other two institutions, The learning objectives of the Social Studies Hubs were to develop and implement an action research plan for improving the social studies outcomes of Māori and Pāsifika learners, use a theory and evidence base to inform the action research, reflect critically on their own learning and the learning of Māori and Pāsifika students, and communicate and reflect on their findings in an authentic context. Module 1 introduced several of the major themes: the QTR&D project, the justification for focusing on Māori and Pāsifika students, culturally responsive pedagogy, the nature of social studies, the tikanga-a-iwi/social studies/social sciences Best Evidence Synthesis (Aitken & Sinnema, 2008), collaborative action research, and a framework for reflection. Module 2 deepened teachers' understanding in relation to the dimensions of the QTR&D Social Studies project. This module also supported teachers in understanding and implementing action research, as they: identified a social studies focused research question, prepared a research proposal, began to gather and analyse data, and reflected on this process. Module 3 was responsive to teachers' ongoing learning needs and supported them in refining their action research and preparing it for presentation. Each module was broken down into several topics (usually one week's work). Each topic contained: new content material, an introduction to key readings, prompts for reflective journals, and questions for dialogue with other participants. Students participated in on-line dialogue with the lecturers to discuss journal tasks and participated in facilitated group discussions of the readings. The Research Facilitators and lecturers in each Hub worked with a group of students to guide them in their projects through on-line contact and four to six school visits. There were three required assignments in these Hubs – a research proposal, a reflective journal, and a case study. The reading list for this course was extensive, including books and articles related to critical pedagogy, cultural responsiveness, social studies and collaborative inquiry.

Teachers' Motivation for Participating in QTR&D

The teachers within the QTR&D programme entered the programme for a wide variety of reasons. Many expressed an interest in learning so that they could help their Pasifika and Māori students.

I feel excited about doing this study and how it will benefit me, and my students. I have always felt an easy connection with Pasifika and Māori students but would like to look deeper into the actual level and quality of learning I can achieve with them. I can relate to and have experienced myself, some of the stereotyping and cultural issues that they may experience in the classroom. But I would like to offer more than an empathetic attitude. I would like to apply my own experience and knowledge in a practical sense to improve their achievement in measurable ways. (T)

The rationale of this project to use learning intentions and success criteria in Tikanga a-Iwi, so that the students and myself would develop deeper understandings of what the anticipated learning would be. The intention is to provide a mechanism for the students to be able to evaluate and reflect on how well they have done. (T)

This year I was made Head of Department of Social Studies and this is a subject that I have had very little knowledge about but I am learning about it all the time. I believe to be a great teacher; we should never stop learning so we can become even greater at what we are doing. The students that sit in front of us every day are my motivation to become that great teacher. (T)

My motivation for embarking on an Action Research project was my frustration with the engagement of Māori students in my social studies classes. I wanted to understand how to connect with the needs and wants of students in my class to improve the outcomes for all students, particularly the Māori students. (T)

Every year since then I tried to make improvements to my delivery to boost student achievement. Quality Teaching Research & Development fit right in to my professional goals, so I excitedly took up the challenge. (T)

I was motivated to take part in this research to gain insights into learning and teaching that standard teacher professional development opportunities do not provide. (T)

Some were also interested in continuing or pursuing their post-graduate studies.

The action research project is part of my Post Graduate Diploma in Education and my own personal professional development as Head of Mathematics at the school. (T)

Always having a desire to undertake post-graduate studies, when the recent opportunity was available to do the research paper which focuses on enhancing the achievement of Māori and Pasifika students, it seemed an appropriate incentive for me to commence my post-graduate studies. (T)

The chance to participate in the Collaborative Action Research allowed me to question my own teaching pedagogy to address the noticeable imbalance in my students' motivation and also created the chance to begin my post graduate studies. I recognised the value of this opportunity and enrolled enthusiastically. (T)

Teachers' Experience of the QTR&D Programme

In all Hubs, the teachers attended classes focused on quality teaching for diverse learners. In some Hubs the focus was largely on teaching and instruction, in response to the particular students being served. In others, cultural responsiveness was in the foreground with teaching and curriculum being adapted to address diversity.

In addition to the classes, these teachers were supported individually and collectively by the Research Facilitators (and sometimes lecturers as well) who maintained regular contact with them. The Research Facilitators kept in touch by e-mail and phone and in most cases visited the teachers in their schools on several occasions (from 2-6). The Research Facilitators offered direct support such as providing additional readings related to specific topics, support in engaging with the literature, assistance in refining inquiry questions, help in designing interventions and co-construction of narratives based on the teachers' investigations.

The participant teachers all engaged in a research project related to investigating their own teaching practice within the designated curriculum contexts. Although the emphasis was different depending on the curricular content and the lecturers' perspective, the focus of the investigations was grounded in quality teaching for Māori and/or Pasifika learners. The following gives some examples of teachers' research/inquiry questions from across the Hubs.

Examples of Teachers' Research/Inquiry Questions

How do task cycles enable Māori and Pasifika students to engage in, and complete, learning processes, so that what is learnt is remembered?

What impact do language fluency strategies, such as concept circles, have on Pasifika students' conceptual understanding of systems of government?

Does using Questioning in Samoan Language enhance children's Oral Language in Samoan during a Shared Reading Experience in Samoan texts?

If the teacher invests more time into the quality of the student/teacher relationship, will this be reflected in the positive learning outcomes for the students, and in their understanding of their own learning in the subject of Putaiao and Science?

What effect does negotiated learning outcomes and success criteria with Māori and Pasifika students have on student engagement?

How does creating a "Circle of Friends" enhance the achievements of my Māori students?

"Do opportunities for culturally relevant dialogue using learning buddies enhance Māori and Pasifika students understanding of Social Studies concepts?"

Does teaching science using the Māori metaphor of ako as a teaching pedagogy help year 8 children understand scientific concepts?

What effects does culturally responsive teaching have on Māori and Pasifika students' knowledge and understanding of the ecology of the forest?

In what ways do science literacy approaches assist students to develop conceptual understanding and writing skills in a whanau-based secondary school classroom?

Does repeated engagement enable Māori and Pasifika students to deepen their conceptual understanding of how communities reflect heritages and cultures?

What impact does narrative storying have on affective outcomes for Māori learners in learning about conflict?

What impact do thinking books have on Pasifika learners' ability to tackle tasks in learning about migration to New Zealand?

How does providing Māori students with the opportunity to explore Māori worldviews and understandings about natural science (landforms), influence their interest and participation in the learning programme?

Which one of the two teaching of vocabulary methods "intentional versus incidental" will best enhance the vocabulary learning of unfamiliar words to students?

Will incorporating explicit instructional strategies when teaching narrative writing have a positive impact on current student achievement?

How does introducing problem-based tasks improve the mathematics achievement of lower performing students?

To examine if peer-tutoring would enable students to feel confident in communicating with others and sharing strategies when needed.

As can be seen, the research/inquiry questions were often framed with specific reference to the students in question and identified the changes in teaching that they wanted to investigate.

Unlike most university papers, the QTR&D papers were also intended to be shared beyond the cohort of teachers. The Research Facilitators worked with the teachers after the course was completed to create papers or presentations for broader distribution. These presentations were delivered to the cohort of teachers within each Hub as part of the final hui and have been collected in a variety of ways to share with others. Some of the papers have been, or are going to be shared, at conferences and meetings beyond QTR&D.

CHAPTER 4 THE INFLUENCE OF QTR&D ON PARTNERSHIPS TO SUPPORT STUDENT LEARNING

Partnerships and relationships are core dimensions of QTR&D, with attention to the creation of productive partnerships that support learning for teachers and for students. This view of partnerships is consistent with a theory of social capital where social capital very simply means that "relationships matter" (Halverson, 2003). It refers to the character and quality of the social relationships within and across organisations and how these relationships promote shared understanding and allow people to achieve beyond what any of them could accomplish alone, through the creation of common language, channels for communication, shared expertise and trust. QTR&D was designed to link Ministry initiatives and priorities to schools, communities and tertiary institutions, as well as linking groups together within and across schools to support student learning. We have identified evidence of partnerships and relationships at a variety of levels: between the Ministry and tertiary institutions, within and across tertiary institutions, among teachers within the Hubs, within classrooms between teachers and students and between classes and the whanau and communities of the students. These relationships did not necessarily emerge in all of the Hubs or teachers' classrooms. Rather, this analysis shows the range of partnerships that QTR&D has the potential to foster.

Connections between Tertiary Institutions And The Ministry

By establishing contracts with tertiary institutions, the Ministry introduced key Ministry priorities into the post-graduate education curriculum and created a link between the tertiary programme and current policy issues. They also took advantage of expertise and processes that were already in place within universities for delivering professional learning (including access to libraries and other resources) in a range of venues across the country.

The universities appeared to be very supportive of the QTR&D partnerships and facilitated the creation of the courses within a very short time frame. Once the courses were in place, QTR&D involved a small number of people, most of whom were already engaged in research and development work within schools, and brought them together to share their knowledge and use it directly in supporting schools. These connections provided an opportunity for university staff to commence or continue their own interest in professional learning for teachers and to become more engaged with Ministry policies and initiatives, as well as contributing to their academic programme of work.

> *A key provider benefit was the maintaining and strengthening of relationships with our educational community of practice. The project grounds us amongst the challenges for Māori-medium education. It also provides an opportunity to inform our own practice especially in relation to the training of our Māori pre-service student teachers. Being located within a dynamic university setting that is committed to excellence and enhancing its reputation it is important to remain connected to and contributing to our local community. Teacher feedback in*

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*relation to our project such as "...nā te Māori, mā te Māori..."
has been affirming in terms of our ability to work alongside our
Māori medium community in a supportive and positive way.
(RC)*

*Benefits to Te Puna Wānanga included increased
understanding by the team of the operational realities of Kura
Kaupapa Māori, improved practice teaching experiences for
pre-service teachers, more relevant connections between theory
and practice. (RC)*

*As University lecturers we are required to produce research
outputs in line with expectations for PBRF. Our engagement in
the development and encouraging of teachers as researchers
supports the research aspects of our work. It is beneficial to us
to engage in PD contract work that also has a research
component. This provides us with both teaching and research,
and there are thus overt links between our teaching and our
research. They are not done in isolation from each other. (RC)*

The establishment of QTR&D also provided a medium for Ministry documents and policies
to be part of the course of study in a tertiary course. Many Ministry documents were very evident in
each Hub as part of the reading list and often formed the basis for discussions in the classes. In
particular, the Hubs used a number of Best Evidence Syntheses (Teaching for Diverse Learners,
Social Studies, Mathematics, Professional Learning and Professional Development) and policy
documents or research reports produced by the Ministry (e.g., the New Zealand Curriculum, Ka
Hikitia, Literacy Task Force Report, Numeracy Project, Pasifika Education Plan, Te Kotahitanga).

Partnerships Within and Across Hubs

One of the outcomes of QTR&D was the close links that formed between personnel across
and within tertiary institutions. Universities do not typically work together to plan and deliver
programmes. It is even rare for departments within universities. In this case, staff associated with
QTR&D from several universities worked together to plan and even to deliver the programme in
some Hubs and a number of alliances were formed or strengthened within tertiary institutions. The
three Social Science Hubs worked together to develop the programme and, although they delivered
it within their separate Hubs, the programme leaders maintained regular contact electronically and
face to face and they planned and conducted their inquiry together.

*It was an opportunity to be genuinely involved in collaboration
– between the RFs, lecturers, coordinators, members of other
hubs and most importantly teachers. The collaboration between
members of the social studies team in Auckland, Palmerston
North and Wellington hugely strengthened the work that was
undertaken. From the outset we were learning from and with
each other. (RF)*

Although the Numeracy Hub worked independently, the Research Facilitator consulted with
the Social Science Hub and drew on their approach and materials to develop the course.

The two Science Hubs collaborated on the initial design of the Science courses and maintained close contact during course delivery. In addition, the team within one of the Science Hubs came from several different departments within the university.

> *The collaboration between the Masters course lecturers at each university expanded their knowledge: previous studies that had focused on professional development of teachers; appropriate pedagogies for Māori and Pasifika students; the philosophy and nature of science and science education; research methods related to case studies of classroom practices and apparent gaps in the literature. (RF)*

> *For the Waikato team, the project provided the stimulus to bring together two science educators and an expert in culturally responsive pedagogy. We collaborated with the planning, teaching, student support and assessment aspects of the course. We worked closely with the Christchurch science hub team. ... We ... discussed our teaching and student work. (RF)*

The courses for the English medium Literacy and the Samoan Bilingual Hubs were taught together, with the same person serving as the Research Facilitator for the English medium and the Research Coordinator for the Samoan Bilingual Hubs. The Samoan Bilingual participants were included in a parallel literacy professional development programme being offered by the English medium literacy team.

These cross- and within-institution partnerships capitalised on existing expertise in a range of places to provide a programme that was richer than would have been created by individuals.

Connections among Teachers within QTR&D Hubs

The intention within QTR&D was that groups of teachers would become learning communities to co-construct and to extend their learning and some of the Hubs espoused this as a major intention within the programme. Several of the Hubs specifically mentioned creating a learning community among the teachers within the programme.

> *This project supports the concept of a school community where organized groups of teachers regularly collaborate to seek and share knowledge to benefit student learning. (RC)*

> *One of the important foci was building the collective capacity of collaboration in the QTR&D work between Samoan Bilingual teachers in this QTR&D project (RC)*

Some of the teachers worked together in their Hub and schools and a few teachers mentioned the value of being part of a community with their colleagues.

> *Nine teachers (15%) from across three of the hubs reported working with other teachers to investigate classroom practice and improve learning outcomes for Māori students and/or Pasifika students. (RC)*

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Five teachers from the Literacy hub reported working with colleagues at the same school. A common feature of these teachers' collaboration was the emphasis on improving the quality of teachers' 'learning conversations'. It was also reported that some teachers working within the QTR&D,EM collaborated with other teachers at the same school who were teaching within Māori Medium and Samoan bi-lingual classes. (RC)

QTR&D mainstream and Samoan bilingual participant teachers working within the same school tended to look at topics that they thought might provide answers for the benefit of students and the whole school rather than individual work. It was a collaborative effort by teachers. (RC)

Being in a community that was, truly, open to learning made a big difference… I have total admiration for the teachers I worked with; their perseverance, their ability to translate theory into practice, their creativity, and especially their concern for Māori and Pasifika learners. I couldn't have weathered the complexity of this research without my other critical colleagues. Nor without having the pleasure of meeting and listening to such delicious social studies learners. (T)

However, there were very few comments from teachers to suggest that strong collaborative relationships developed among the participating teachers or that they worked together on their research projects. They did acknowledge the importance of support and collaboration from colleagues and administrators in the school and outside experts, especially the course lecturers and Research Facilitators, who provided ongoing opportunities for dialogue and support.

Connections within Classrooms

New relationships were evident in some of the classrooms among students and between teachers and their students within the classroom community, and sometimes the teachers' inquiry projects were directed specifically at changing relationships.

Her practice shifted from telling to 'acting as a partner in the conversation of learning' although she acknowledged the need for further change in this area and the hoped for development of more productive relationships. (RF)

[I] learnt the value of knowing students' worlds, bringing their lives and cultural identities to school and building on their prior knowledge [I] started recognising the background experiences of Māori and Pasifika students and valued their ideas and experiences. Additionally, [I] began to think critically and carefully about how to develop relationships with these children, relating to their worlds and cultures. (T)

Connections of Classes with Whanau and Community

One of the intentions within QTR&D was that schools would establish links with the community that formed the context for their students' lives. Although these relationships are explored in more detail in Chapter 7, it is important to note that some teachers in some Hubs (particularly Social Science and Science) went to considerable effort to make connections with the community.

14 % of teachers worked to include a recognised 'cultural expert' (kuia, kaumātua, family/community member) within their inquiry projects in an effort to draw on these stakeholder stories, perspectives and worldviews. These teachers came mainly from the Science hubs, with one teacher from the Social Studies hub. Analysis also indicated that 20% of teachers from both the Science and Social Studies hubs worked to include parents and/or caregivers directly and/or indirectly through Māori students' and/or Pasifika students' own inquiry projects. However, evidence also indicated that no teachers within the Literacy and Numeracy hubs collaborated with students' parents/caregivers directly and/or indirectly. (RC)

Whanau is a key component of the framework as it provides a link between the teacher, student and the student's Whanau. During each lesson two opportunities are given to discuss information and ideas gained from members of the students Whanau. At the end of each lesson the students are asked to describe a component of the lesson to a member of their Whanau and then ask for specific information that will be used at the beginning of the following lesson. At the beginning of each lesson the students' Whanau responses are recorded and used as in contexts that exemplify the learning objectives. (T)

Whanau members who supported the research project "the ecology of the forest", on the learning journey were: a kaumatua and whaea (Māori elders), a parent and Board of Trustees member of the City School of one of the students. Three other mothers were very interested and supported the project especially the activities following the journey of the students. (T)

For me as a teacher, two pivotal ways of facilitating learning and development have become apparent. The first is the fundamental importance of establishing relationships so that an environment conducive to learning is created. Involving whānau and the community helped to authenticate [student] experiences. (T)

Teachers were also given the opportunity to link their projects to social and cultural contexts. Additionally the hub coordinator was provided with support to link to the wider Kura community. (RC)

At the same time, several Hubs did not include any attention to links with community and linking with the community and maintaining these links was an issue that was identified as challenging.

> *Comments made in the Social Studies hub report indicated that while teachers may have initiated "direct communications with homes" as part of the process, such teacher-home contacts "were not sustained in most cases". (RC)*
>
> *One of the aims of this project was also to involve the community in a Tikanga-a-iwi planning and ideally some of the teaching around local hapū knowledge. We found while the intention was an important one; the reality and practice was not able to be achieved during the life of this project, and two; it takes time to engage in discussions with the community, to come to shared agreements about who are the people with the relevant knowledge and to synchronise the planning around other expectations and happenings in the school. (RC)*

Summary of Partnerships in QTR&D

QTR&D focused on partnerships across various groups as a mechanism for forging relationships to create the social capital to move the principles of QTR&D forward within and beyond the programme. The programme facilitated the development of some relationships with the potential to have lasting influences for professional learning for teachers of Māori and Pasifika students and it was less successful in establishing models of other relationships that could be productive.

The partnership between the Ministry and universities has shown that it is possible, although sometimes problematic, to combine professional development for teachers with tertiary courses. These partnerships have also helped to highlight Ministry documents and policies in the tertiary sector, albeit with a limited number of the faculty. Of more significance is the number of tertiary personnel who worked together within and across the universities in QTR&D. Relationships have been established that were not only very productive in sharing and extending expertise but are also likely to continue in other initiatives related to and investigating professional learning for teachers.

Relationships among the participating teachers within QTR&D were less evident and did not appear to have the potential to become lasting contacts that would move professional learning forward in any significant way.

New relationships were evident between students and students and teachers and students in a small number of classrooms. These changes had a powerful effect on individual teachers and are likely to affect their practice in the future. However, this kind of activity was limited across the programme as a whole and is unlikely to have widespread influence on other teachers or schools.

CHAPTER 5 FOCUS OF QTR&D ON QUALITY TEACHING

The RFP for service providers for QTR&D locates teaching quality for diverse students at the heart of the expectations for the programme.

> *The purpose of the QTR&D project is to build on existing knowledge to understand more about quality teaching for diverse learners within pre-determined contexts. Teachers will initiate research and development to improve the quality of their teaching and learning outcomes for their Māori students and or Pasifika students. Each research 'activity' will relate to the strategic objectives of the QTR&D project as listed below and include the development of understandings and the sharing of knowledge through publication of learning stories, resources and approaches to quality teaching for Māori students and Pasifika students. (RFP)*

Although QTR&D is primarily about quality teaching, the professional development programme was typically not directly aimed at fundamental issues of pedagogy, but rather at providing teachers with tools to enhance and extend their existing pedagogical and content knowledge to serve diverse students better. As one Research Coordinator expressed it:

> *It is not the coordinators' brief to teach teachers about teaching in these contexts although clearly they will be exposed and will seek research-informed materials about effective practice in these contexts. The investigation teachers will undertake in their action research as a requirement for this paper offers participant-teachers an opportunity to examine an aspect of student learning or teaching. It is giving teachers research skills to do research about their own teaching and how that might impact or not impact on their students' learning. (RC)*

For the most part, the courses concentrated on discussing what is known about high quality teaching for Māori and Pasifika students and using the research/inquiry process to challenge, change and examine their practices. The teaching approaches that were included in the Hubs came from a range of sources (including several Best Evidence Syntheses – Quality Teaching for Diverse Students in Schooling; Effective Pedagogy in Mathematics/Pangarau; Effective Pedagogy in Social Sciences / Tikanga ā Iwi; Te Kotahitanga) and other curriculum specific literature about teaching within diverse contexts. As the English Medium Research Coordinator reported:

> *[It was] interpreted in all Hubs as an integrated approach based on the principles in the BES Quality Teaching for Diverse Learners with different emphases in each Hub. This included expertise in research methodologies implicit in collaborative inquiry and research and development activities designed to support teachers working in English Medium settings to improve the quality of teaching and learning outcomes for their Māori students and Pasifika students across literacy, numeracy, social studies and science contexts. (RC)*

Pedagogical and curriculum issues were addressed in each of the Hubs through the rich literature bases that the course provided for the teachers and in the routine discussion of teaching practice with their lecturers and Research Facilitators both face to face and through other media.

> *An analysis of teachers' final research reports and of course outlines indicated that courses supported the development of teachers' understandings through the use of relevant research literature and its application in practice. The supporting research base available through QTR&D post-graduate courses included library databases enabling teachers' access to national and international studies. Analysis indicated at least three main bodies of literature were emphasised in course outlines and in teachers' final research reports. These included:*

> - *Culturally responsive and inclusive pedagogies (including Quality Teaching for Diverse Learners)*
>
> - *Teacher practitioner research methodologies (e.g. associated with collaborative inquiry/action research and so on)*
>
> - *Curriculum domain specific resources (RC)*

The assumption within the QTR&D programme was that most teachers were already well-grounded in basic curriculum and pedagogy. This proved not to be the case for some teachers in virtually all of the Hubs. Research Facilitators and teachers themselves from all of the Hubs commented on the many gaps in teachers' knowledge about many aspects of curriculum, pedagogy and assessment.

> *Some teachers' knowledge of curriculum content areas, knowledge of the curriculum documents in relation to planning, of pedagogy, aims and purposes of education, and classroom management was not as developed as some of the other teachers. (RC)*

> *Not all teachers were in the same space either cognitively, professionally or culturally. The teachers had been initially trained by a range of preservice education providers and held a range of qualifications. Some were fairly new graduates while some had been teaching for a while. Some had had a practical hands-on training, others had learnt a lot about Matauranga Māori and less about classroom management, curriculum and pedagogy. (RC)*

> *Samoan Bilingual teachers in this project needed to be equipped with content knowledge to be able to have clarity of what they expected students to show in planned activities. (RC)*

> *Given that the research investigated the role of explicit teaching of instructional strategies in writing programmes, there was a need to establish what was known about writing*

achievement in general and effective instruction specifically. (RF)

I quickly realised that the major barrier to improved learning for my students, was my own lack of in-depth knowledge of Social Studies as a curriculum area, as a learning area, and as a knowledge area. I now personally have deeper understanding of Social Studies as a curriculum area and how this can impact on, and support, learning in other curriculum areas. I have up skilled my knowledge of the curriculum, planning, teaching and assessing this curriculum area. The BES has demonstrated links that can be made between learning in Social Studies, learning in other curricula, and learning in life. (T)

In order for teachers to make the connections, they need to be up-skilled and knowledgeable. This area of learning to teach writing by making links to reading was enhanced through the participation in Professional Development being undertaken by a writing expert throughout the time of the intervention. Although the Professional Development focused on the teaching of Recount, the strategies for teaching writing were transferred to the teaching of Narratives. (RC)

I wasn't sure what I was trying to teach and there tended to be a lot of busy work that didn't specifically focus on social studies concepts and understandings. Now, the social studies concept is clearly defined and the social studies sessions are all planned to develop and build on conceptual understandings. The students' and I both knew what we were focusing on. The use of meta-cognitive strategies, e.g., a time-line to record cultural transmission, has helped to focus learning even more. (T)

Initially I did not really understand the Tikanga-a-iwi curriculum; I now have a better understanding of its intent and purpose. (T)

We did not anticipate having to teach about assessment. While we touched on this the time frame for the project did not allow for spending a lot of time in this area. More work needs to be done with teachers and schools on assessment, data gathering, exemplars, and analysis and then how to use the analysis to support teaching and learning. (RC)

The lecturers and Research Facilitators in all of the Hubs spent considerable time providing teachers with readings, instruction, mentoring and advice related to teaching generally in their target subject area. In the English medium Literacy and Samoan bilingual Hubs a parallel course provided the teachers with support in teaching reading and writing. In the Māori medium Hub, the RTLBs provided on-site support to teachers in relation to the curriculum and their teaching practices, particularly implementing learning intentions, classroom management and formative assessment. Both the Numeracy Hub and the Social Science Hubs used the BES documents in their curriculum area to provide teachers with knowledge about curriculum and pedagogical

content. The Science Hubs drew on a wide literature related to Science learning, with attention to different cultural conceptions of Science.

Summary of Quality Teaching

All of the QTR&D Hubs were focused on enhancing teaching and learning for Māori and Pasifika students. This meant attention to curriculum, pedagogy and assessment within the specific subject of concentration. In all Hubs they found that this often meant enhancing teaching practice generally because many of the teachers had limited experience or professional development in basic issues of curriculum and pedagogy; helping them to become better teachers made them better teachers for all students, including those who were Māori and Pasifika.

CHAPTER 6 COLLABORATIVE INQUIRY IN QTR&D

Teacher engagement in the research/inquiry process is the core of QTR&D, with the inquiry project intended to integrate all of the other processes. This attention to inquiry in QTR&D is premised on research that has suggested that teacher inquiry is central to sustained school improvement. Robinson (2003) describes three reasons for engaging in teacher inquiry. The first is the professional obligation of the teacher to review the consequences of their decisions about what and how to teach, the second is that teaching practice is highly contextualised and teachers have to learn how to create the conditions to produce the results they desire by making evidence-based decisions about how to adapt practices to their own context. Thirdly, inquiry is a highly effective form of job-embedded professional development that allows teachers to learn together about how to do their jobs differently. This third reason highlights the notion of collective learning, as a significant dimension of professional development, where new learning is facilitated, encouraged, challenged and co-constructed in a collaborative context.

QTR&D incorporated inquiry into all aspects of the programme. Not only were the teachers enrolled in a course that had a research requirement, the Research Coordinators and Research Facilitators themselves undertook research projects based on their QTR&D experience. The inquiry process was the glue that bound all of the components together and integrated the course and the support structures for the participating teachers. In this analysis, we consider the theoretical foundations for inquiry used within the Hubs, the roles of the Research Coordinators and Research Facilitators in the inquiry process and the nature of the inquiry in the teachers' projects.

Inquiry in the QTR&D Hubs

Inquiry in the QTR&D Hubs was integrated across the tertiary courses and the work of Research Coordinators and Research Facilitators supporting teachers in their research/inquiry projects. The personnel in Hubs drew on a number of scholars to frame their approach but the intentions were quite similar across the Hubs. Even though they drew on different scholars and traditions, they all emphasised the use of research/inquiry to foster systematic reflection on practice in the real world of their classroom.

Within the Courses

For the most part, the tertiary lecturers saw research/inquiry as a process for change, grounded in the idea that development and innovation are an essential part of personal development and professional practice that empowers teachers to challenge themselves to examine their beliefs and teaching practices. In all of the Hubs, the inquiry requirement was interpreted as an opportunity for developing research and inquiry skills and investigating one's own practice. At the same time, as tertiary courses, often adaptations of existing courses, they often had an academic research orientation based on expectations for advanced degrees.

Some Hubs emphasised doing a research study.

> *The practitioner research learning goals of this course are that you:*

- *develop your educational research literacy;*

- *reflect on your own experiences to illustrate, explain, theorise and critique your practice;*

- *construct clear and well-ordered arguments, claims and explanations*

- *implement and research the impact of a culturally responsive science teaching innovation on your Māori and Pasifika students (course description)*

Action research can be described "hands-on" small-scale research, which is practical and aims to solve or improve a problem or issue. Action Research aims to alter things as part of the research process. The course will lead and support you to complete your own action research project in your classroom or workplace. (course description)

The lectures aimed to cover the Action Research Cycle, which involves three main areas: problem analysis; action planning implementation; and reflection and evaluation The cycle is guided by three principles: that action research should be deliberate, systematic and rigorous; that it should be iterative (circular and repetitive) and that it should have three broad stages. The first stage involves reconnaissance – examining an existing problem; interventions – actions to improve practice; and evaluation – monitoring the effects of the action. These, when applied to research, should amount to change (Cardno, 2003). (RC)

Through developing a proposal and undertaking a small research project in your school you will be taking on the role of a teacher researcher. This will require you to identify and justify an aspect, or aspects, of your practice in relation to students' learning; to review and analyse research literature on relevant issues; to identify, select and use appropriate data collection processes; to describe how to analyse the data that you will collect; to implement the project and to interpret and discuss the implications of the outcomes. As a part of the course, you will be asked to report on your project to your professional community at a mini conference held at the end of the year. (course description).

Other Hubs were more focused on engaging teachers in reflection on their practice.

Reid's definition of inquiry, as a way of reflecting on professional practice has guided the design of this course: Inquiry is a process of systematic, rigorous and critical reflection about professional practice, and the contexts in which it occurs, in ways that question taken-for-granted assumptions. Its purpose is to inform decision-making for action. Inquiry can be undertaken individually, but it is most powerful when it is collaborative. (course description)

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Collaborative inquiry includes participatory action research, Kaupapa Māori research, and problem-based methodologies that provide 'opportunities for rigorous investigations of school wide teaching and learning' (Robinson and Lai, 2006, p 198) as the key strategy for change, development and improvement. (course description)

Teacher inquiry is a vehicle that can be used by teachers to untangle some of the complexities that occur in the professions, raise teachers' voices in discussions about their practice, and ultimately effect positive change (Fichtman Dana & Yendol-Silva, 2003). (RC)

The following description, taken from a course outline, gives an image of a very comprehensive teacher inquiry approach designed to be enacted within the procedures of a tertiary paper.

Research proposals should demonstrate how they are designed to:

- *have clear research questions, conduct collaborative inquiry and engage with the existing evidence-base on quality teaching for Māori and Pasifika students and associated achievement patterns*

- *improve learning outcomes for Māori students and Pasifika students*

- *include a clear focus on collaborative enquiry, Kaupapa Māori and Pasifika research, and socio-cultural understandings of learning and behaviour*

- *show understanding of theoretical frameworks for engaging with Māori students and Pasifika students, parents-caregivers, whānau and community members and respond to Māori and Pasifika students' diverse identities*

- *value the role of student voice*

- *adhere to the very highest ethical considerations*

- *investigate the quality of teaching and learning outcomes within designated literacy, numeracy, social studies and science contexts*

- *connect learning opportunities in the classroom to students' cultural contexts and world views*

- *enhance the cultural responsiveness of pedagogical practices*

- *foster work as caring, inclusive and cohesive learning communities*

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- *provide professional growth for all co-inquirers and contribute to the wider educational research environment.*

The spirit of inquiry in QTR&D was echoed in a teacher's research paper:

> *Collaborative action research is a type of qualitative methodology which is broad enough to encompass the tenets of kaupapa Māori research practices (research practices which are framed within Māori philosophy and principles). Whakawhanaungatanga is one such practice. Bishop's (1999) analysis of whakawhanaungatanga as a research process suggests using collaborative storying and restorying to create a collective response between the researcher and the focus group; the researcher is involved physically, ethically, morally and spiritually in the research process (Bishop, 1999, p. 208). Something more than just an interview is required: "When researching in Māori contexts, simply listening and recording stories of other people's experience is not acceptable." (Bishop & Glynn, 1999, p. 103). In my research, sharing my experience and creating shared experiences with the focus students is integral, especially since I was as much a subject of my research as the students. (T)*

By Research Coordinators and Research Facilitators

The Research Coordinators and Facilitators in the QTR&D Hubs extended the work of the tertiary courses by reinforcing the role of inquiry in their approach to supporting and guiding the teachers. Research Coordinators were essentially lead inquirers. They were responsible for facilitating inquiry within the Hubs and conducting their own inquiry. Their role in facilitating inquiry was described by the Coordinator of the Samoan Bilingual Hub this way:

> *Part of the role of the QTR&D Research Coordinator will be to facilitate a collaborative inquiry process, and ensure that shared goals, protocols and practices exist across and within this Hub. The key focus of all collaborative inquiry activities will be expected to relate to investigating and improving teaching practice within Samoan bilingual/bi-literacy teaching settings, with a focus on enhancing Pasifika students' learning outcomes. (RC)*

In their facilitative role, the Research Coordinators worked with the Research Facilitators and lecturers to establish a set of protocols and guiding principles for QTR&D. They also monitored progress in the Hubs and produced milestone reports for the Ministry.

Research Coordinators also conducted their own inquiry to investigate the influence of QTR&D on teachers' professional learning and student outcomes.

> *To examine whether the QTR&D professional learning through classroom-based, collaborative inquiry enables teachers to connect learning opportunities in the classroom to cultural*

contexts that students are socialised in; enables teachers to develop pedagogical practices that enable classes and other learning groupings to work as caring, inclusive and cohesive learning communities; and improves learning outcomes for Māori students and Pasifika students within specific curriculum contexts. (RC)

The following are the main questions developed to collect the data and to assist in the development of the recommendations: What evidence is there, that professional learning through classroom-based, collaborative inquiry:

- *enables teachers to connect learning opportunities in the classroom to cultural contexts that students are socialised in?*

- *enables teachers to develop pedagogical practices that enable classes and other learning groupings to work as caring, inclusive and cohesive learning communities?*

- *improves learning outcomes for students within specific curriculum contexts?*

- *provides professional growth for all co-inquirers? (RC)*

Each Research Coordinator (often with collaboratively with the team of lecturers) produced a Hub report providing an overall synthesis and analysis of the QTR&D hub research findings about influences that impact on the quality of teaching within specific curriculum contexts and on Māori student and Pasifika student learning outcomes. This involved collecting data:

a range of sources including teacher action research projects, reflections and oral presentations. Data was also gathered using questionnaires, personal face to face interviews, minutes and reports from the project team. (RC)

Research Facilitators were the front line support for teachers within the Hubs as they identified their area of inquiry and throughout the inquiry process. The first items in their role description were:

- *Apply relevant theoretical frameworks to assist individual teachers with the implementation of a coordinated inquiry based and participatory research project.*

- *Support and mentor the enrolled teachers within each hub in their post-graduate action research paper. (RFP)*

They provided direct support to help the teachers in developing and implementing strategies to enhance Māori students and Pasifika students learning outcomes; in collecting, analysing, interpreting, theorising and using quantitative and qualitative data (e.g. through student achievement records, observation, documentation analysis, photographs, audio or video recording, associated quantitative data, interviews and questionnaires); in assessing the extent to which strategies or actions have improved the quality of teaching and learning outcomes for Māori

students and Pasifika students; and in critically interrogating and reflecting on existing teaching practice, data and personal theories.

The aim was to give individual teachers necessary support in formulating an inquiry topic and to assist them in refining a research question. It was anticipated that each teacher met with the RF for 20 minutes [per visit]. Nevertheless in some cases, more time was needed and this was adhered to when necessary to meet the purpose of the visit. As undertaking research was a new learning experience for many teachers, specific guidance was given in designing a task outline for each participating teacher leading up to the next Hub meeting. (RF)

The visits were used as reflective sessions on how each teacher progressed in their research. These visits were also used to design the next stage of the process for individual teachers to concentrate on, despite issues teachers faced in the context of classrooms, schools and community. (RF)

The team read the teachers' initial drafts and provided further feedback focussed on assisting teachers to represent more fully and clearly, within the text of their reports, what they had accomplished with their students. The feedback emphasised the need for teachers to demonstrate how the pedagogical principle of ako enabled them to learn from their students as well as to suggest how other teachers might learn from their reporting of their experiences in the project. Another emphasis of the feedback was on ensuring the presence and authenticity of student voice within the teacher research reports. (RF)

Generally each week the classroom teacher and I discussed progress of students. Initially we looked at planning how we could implement this Action Research as there where a number of outside influences and programme "must do's" that had to be taken into account. We also wanted this work to be an integral part of the class programme which could be embedded so that it would not be seen as an "add on" or "extra thing to do". We discussed what we felt would be positive ways that we could look at increasing student achievement in sentence comprehension and possible strategies that we might use to achieve this. (RF)

Two in-class visits by the course lecturer were used as a passive observer feedback- one visit was at the beginning of the research and the other was at the end. Each visit was followed by a discussion between the teacher and the lecturer. Feedback given was used by the teacher to inform her practice on one hand and for data analysis purpose on the other. (RF)

For some teachers, the experience of the collaborative action research led them to realise that there were absences in their research data, or difficulties with their research question and/or methodology. Unsurprisingly, teachers were at different

stages in their capacity to carry out this kind of research – some teachers were still to maintain a steady focus on the collection of data in relation to their focus students. In all cases, the RFs role was to help sustain the teacher's research efforts within the messiness of collaborative action research, and at the same time prompt their attention towards the rigour of their research. (RF)

The teachers' action research project was an on-going aspect of their professional development after a period of input that included readings, reflection and group dialogue. Researchers worked with teacher participants enrolled in the university course to formulate research questions and to engage in action research. Teachers discuss what this means for their classroom practice and the professional development school where they work. (RC)

Research Facilitators also undertook their own inquiry about the implementation and impact of QTR&D within the Hub and produce Research Facilitator reports that described the implementation in their Hubs and their learning from the experience. In the Māori medium Hub, the RTLBs decided to participate in a classroom based inquiry project themselves to share the kinds of experiences that the participating teachers were having and the Hub report was produced by the Research Coordinator and lecturers. Because of the late appointment of Research Facilitator in the Samoan Bilingual Hub, the Research Coordinator led the inquiry related to the Hub and produced a Hub report. The Research Facilitators in the three Social Studies Hubs engaged in a collaborative inquiry about their work with teachers in three different Hubs and conducted interviews with each teacher, using probes to elicit greater detail to prepare their final report. In the Science Hubs, the Research Facilitators (and lecturers) in each Hub produced a Hub report. In Waikato, one of the Research Facilitators worked with each of the participating teachers in the Hub to produce collaborative research stories based on the teachers' experiences.

Teacher Research/Inquiry Projects

The inquiry process was the substance of the tertiary paper and was intended to provide the framework for teachers' professional learning by drawing them into a systematic process of attention to particular Māori or Pasifika students, with the explicit intention of embedding culturally responsive quality teaching into their practices and engaging in research/inquiry to investigate these changes. In this section, we analyse the inquiry processes that teachers used in relation to this inquiry cycle. We describe why teachers chose the particular issue that they investigated, the choice of target students, and how they conducted the inquiry to investigate and influence their learning and their practices.

Choosing the Area for Investigation

As teachers were introduced to the course and the professional learning intentions in QTR&D, they began the process of deciding what part of their practice they would concentrate on

and justifying to themselves and their colleagues why this area deserved attention. In some cases, the focus was defined from the reading that they were doing.

> *It also outlines in the discussion section of this document that "the level of writing achievement for Māori and Pasifika students is lower than for other student groups" (Ministry of Education, 2006, p.2). These statements aligned with what we discovered about the students in our context. (T)*

> *Recent studies on enhancing reading comprehension for Pasifika and Māori students in South Auckland found that although these students decode well, they are very low on two areas. One of the areas is vocabulary development. (T)*

> *Early in the teaching year, the research facilitator and I recognised a need for my Focus class of Year 9 students to learn to interact as a 'Learning Community'. By focussing on Mechanism three of the BES for Social Sciences (Building and Sustaining a Learning Community), I chose to use the strategy of a learning hui to encompass the pedagogical approaches I would need to use within my classroom to foster this environment through Social Studies. (T)*

> *Hence the focus of this project is to document the findings of research undertaken on my own class where pedagogies that have been identified as being more culturally responsive are used in the teaching and learning of science. (T)*

In other cases, the teachers were conscious of areas where they felt their teaching had not been successful in the past.

> *In my year nine mathematics class, it is difficult to engage every child in the group to discuss their mathematical strategies. Some students are reluctant to contribute to discussions due to more dominant personalities monopolising discussions. Attention to task is often avoided by other students and the subject matter can tend take a different directions. Opportunities to share mathematical ideas are limited due to the barriers stated above. Therefore, the major question arising from these experiences is how I can provide equal opportunities to engage students in sharing their mathematical strategies in group situations. (T)*

Others capitalised on the interests of their students.

> *During this research process, I have noticed the students were captivated by using ICT tools during language experiences and through this I captured their enthusiasm for retelling and practising using chunks of language in the heritage language using I-movies. (T)*

> *The focus emerged during a school trip to the coast when these students showed by their questioning that they were extremely interested in shellfish and other creatures living in rock pools.*

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The students' questions led to the development of a project with a teaching focus on the relationships between shell structure, shelter and movement. (T)

Sometimes the area of inquiry arose from general observations of the students in their class.

I can see that children can easily speak and talk with expression in English, but they struggle to apply the same skill technique when speaking in Samoan with a friend. I also noticed through observation that children expressed and brought out their personal writers voice better in their English stories compared to their Samoan stories. (T)

I hoped to find what it is that engages Māori and Pasifika students in the learning of science, as I have found through past experience that although my students were compliant when learning topics were chosen by teachers, they often demonstrated a lack of interest. (T)

The present research was triggered by concerns over difficulties that Samoan students in a Samoan Bilingual Unit seemed to encounter in reading and understanding English texts. In particular, this project examined the impact of questioning using the Samoan language on students' reading abilities. (T)

I identified a number of issues; the most significant being the apparent inability of the low-achieving group of children to work effectively on mathematical tasks independently of the teacher. (T)

The decision to focus on repeated engagement came about when I noticed that my students had difficulty making connections across learning that occurred in different curriculum areas or contexts. (T)

My Māori and Pasifika students were not fully engaged in their learning. They often looked to me as their teacher for the answers or withdrew to a safe option and opted out. My observations showed that my Māori and Pasifika students had much lower participation rates than other students in the group. (T)

In a very few cases, teachers engaged in specific observation and assessment with the target students to determine the learning needs of their students to decide what instruction was most appropriate.

The identification of prior knowledge was evident when student voice was listened to and utilised for next step learning. There were multiple opportunities for the students to consolidate learning as the teacher, other adults of significance, e.g., the deputy principal, and other students modelled their cultural stories to the group. These concepts were revisited in

discussion and recorded for comparison and generalisations to be made. (T)

Firstly, assessing prior knowledge of the students' conceptual understandings necessitated methods that minimized language as a barrier, therefore pictures and diagrams were used. I talked to students about their pictures. It helped students to progress to the complex, abstract concepts within systems of government, by starting with their experiences. It also ensured that any misunderstandings or preconceptions were identified quickly. For example, Parliament and Government were seen as being synonymous by all the students. They also thought of it as a place you go to, rather than being linked to people and processes. Their understanding of decision-making processes was unanimously top-down models. (T)

The assessment information gained in this procedure is of great benefit to the teacher as it allows for forward planning and an in depth understanding of a child's ability in each of the seven features of writing, which are the cornerstones of student achievement in literacy. (T)

Through observation I realized that my Māori and Pasifika student's voices were not heard in our classroom, as during discussions they would shy away from engaging in meaningful dialogue with the rest of the class. Both of these student's were very reluctant to engage in classroom discussions and rarely offered ideas but would agree with the answers of others. They also would not share deeper feelings and thoughts with the class. (T)

The very first thing that had to happen was to assess what the students and teachers knew about learning intentions and whether they used them often in the class. Questionnaires were given both to the kaiako and the tamariki. (RTLB)

The students selected for the project scored poorly in the STAR sub test 2, and had achieved Stanine 1 in the STAR test at the beginning of the year (February 2007). That is, they came in the lowest 4% of all pupils in the same age group nation wide. They generally have difficulties in word recognition, sentence and paragraph comprehension, word meanings, language of advertising and understanding styles of writing. (T)

Selecting the Target Students

In most of the classrooms, teachers selected a small number of Māori or Pasifika students as the focus for their investigation. In some cases (particularly in the Literacy and Bilingual Hubs, the teachers identified their project students and adjusted instruction for them specifically. In most cases, teachers changed their practices with the whole class and conducted their inquiry with the target students.

This small scale research was conducted in a class, where a group was selected comprising of three girls and three boys. This research was carried out on students to encourage and engage them in the writing process to produce structured sentences. (T)

I taught the whole class but selected six students as a group for the research. (T)

As this research took place inside the classroom during Guided Reading all or most students were recorded by the video recorder used, however, only responses either verbal, facial gestures and body languages of the four selected students were transcribed. (T)

Conducting the Investigation

The teachers in the different Hubs engaged in a wide range of interventions and inquiry processes. They typically drew on the discussions and readings in the course to help them isolate interventions that were consistent with the area that they had identified as worthy of attention.

The aim of this action research was to change my questioning to include more higher-order questions and observe how the children responded; establishing that extracting quality responses necessitates quality teacher questioning. It was my aim as a professional to work hard towards the focus on links between reading and writing and to make an informed effort towards developing a specific part of my Literacy programme that would be effective for the particular group of children whom I taught. (T)

My area of study focused on enhancing children's use of vocabulary in science. The course tested the ways of teaching vocabulary through scaffolded activities that are predicted to enhance children's learning. The research tested my prediction for the use of science vocabulary in my classroom. (T)

The different views of science supported my learning intention for the following study where I proposed to introduce both views and allow the students to discuss and explore the similarities and differences of those views and thereby construct their own understanding. Involving members of the local community (whanau and elders) with storying related to 'Making Sense of the Living World: Ngahere' will help not only to 'Rekindle Traditions' but will show the students that the teacher is also the learner and so offers a powerful life-long learning model. (T)

Five intervention phases were planned and delivered to students during writing sessions and lasted up to 30-40mins. Each intervention had its own purpose and evolved from the interventions prior to it. All interventions were video recorded to capture student participation, language switching and behaviours during lessons. (T)

For eight weeks in term three, I chose to research the effects that repeated engagement has on developing more in-depth conceptual understanding. Repeated engagement involves students encountering and investigating conceptual understandings through multiple and varied learning experiences over a range of contexts. (T)

Asking questions in group discussions, clarifying thinking and developing communication skills of the students were at the centre of this action research in mathematics. (T)

The research requirements for a tertiary paper formed a backdrop for the teachers to engage in their inquiry process and there were a number of examples of attention to issues of research design, systematic data collection and data quality in the teachers' reports.

For this research, qualitative data gathering was used as a way of recording student and teacher findings for the researcher to gain an understanding of the effect of culturally responsive teaching having an effect on Māori and Pasifika students' knowledge and understanding in science and the project topic, the ecology of the forest. Forms of data gathering used with this project were:

- *observations - field notes, students natural conversations and drawings – researcher took notes and photos taken during observations;*

- *interviews / questions – transcriptions and open ended questions, notes scribed;*

- *documents – written journal entries by researcher and transcript of participants presentation of their learning in school assembly; and*

- *Audiovisual materials – pictures, photos, videotapes recorded by researcher and other people. (T)*

Video tapes of three group lessons were used to identify types of teacher's questioning and students' level of engagement and their actions to determine their interest towards mathematics which was used as data to establish a baseline for the research. Additionally, these tapes were used to find out the amount of time the teacher gave students to discuss their ideas. (T)

Teacher instruction and student learning were observed. The observation took place once a week at an interval of 10 minutes during a lesson where children were required to work in groups, pairs and individually. (T)

Ongoing observations alerted me when it was necessary to address issues around group dynamics, teamwork and cooperation, consultation and encourage conflict resolution when things got too tough for the students to cope with alone. (T)

Throughout the entire project the researcher maintained a journal as he implemented action research requiring him to reflect on his teaching and the learning being undertaken by the children. (T)

The negotiated assessment task was a test. Although not predicted by the author it did give the opportunity to analyse some quantitative data along with the qualitative information extracted from the focus group discussion. This discussion was conducted with a group of six children. In addition a separate interview was conducted with the other participating teacher. (T)

The tools to be used for this research are purpose built designed and answer specific question. They are; a student questionnaire, an asTTle writing sample, a criteria checklist template, weekly unit planners, a peer teacher observation and a self assessment. (T)

For the validity of the asTTle test, certain parameters needed to be accurate and appropriate to the students' in this context. The curriculum selection was writing, and the genre selected was Narratives. The test task was selected according to level of difficulty, and whether the students in our context could relate to the content of the task. This decision was a collective decision based on the three teachers who were carrying out the research. Professional development with a writing expert provided us with the 80% accuracy in moderation for marking asTTle in our school. This ensured that the marking of our tests were 80% or above consistent. The writing expert was also used to moderate each test of the sample selection after they were marked by the teacher. This ensured that there was validity in the results and marking.(T)

I have a student teacher in the classroom who observed and reflected on two lessons I conducted in the classroom. One was a Literacy lesson and the other a Numeracy. (T)

I gained data mainly from the information retrieved from my own classroom, I used other teacher's experience, when analysing sections of my data to confirm what I believed to be evident, and to create a consistency between each observation and lesson. (T)

I have endeavoured to ensure that I have reliability and validity by gaining feedback from a skilled objective observer through in-class observations. (T)

In some cases, particularly in the Literacy Hubs (English and Bilingual), teachers collected pre and post data to test the impact of their interventions.

I used repeated measures of the school's long term planning assessment tool for writing and reading from our on-line assessment tool called "School Master" to create a base-line of

reference, from which I note shifts in results or lack of progression. After critiquing the raw data I will be in a better position to comment on the relevance and usefulness this project has had on both my teaching practice as well as the children's learning. (T)

For this action learning I decided upon suggestions given from colleagues that I should do two pre-test and two post-tests, both in English and Samoan. I have also translated three legends, fagogo or fables from three different School Journals, one for the pretest, another for the interventions and the third fagogo for the post-test, to check whether the students could transfer the knowledge from previous fagogo or whether any learning has taken place. (T)

These were also video recorded to capture student behaviours and conversations during feedback. An interview was conducted after both pre-test and post-test had been completed. (T)

I used the method of videotape self-review to assess questioning and oral language. There were three group observations. Firstly, it was a pre-test to check what levels of questions that I asked and what responses did the students give during a Shared Reading experience in a Samoan text. Secondly, I planned a well structured lesson with questions and teach again, that was an intervention. Finally, a post-test to check if there is any shift and achievements in student's responses and my questioning techniques. (T)

There were research based interventions and quasi - experimental designs to see how much the students had improved throughout the research. The ASSTLE writing test at the beginning of the year was used as a baseline but there was teacher prepared Pre and Post -Tests as well as other assessment activities throughout the research as there were no standardised assessments in Samoan that could cater for the purpose. (T)

Reflection On Practice

The ultimate goal of having teachers conduct an inquiry in QTR&D was to engage them in a reflection on their beliefs and practices that would result in changes to their practice.

Teacher reflection, a key component of inquiry that encouraging teachers to reflect on the success of their teaching, is a necessary first step towards change. (RC)

What is it that turns experience into learning? What specifically enables teachers as learners to gain the maximum benefit from the situations they find themselves in? How can they apply their experience in new contexts? Boud et al. (1985) suggest that structured reflection is the key to learning from experience, and that reflection can be very difficult. Teachers who do not have

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reflective inquiry skills tend to make decisions based on assumptions as opposed to making decisions based on evidence (Robinson, 2003). As a component of the course work teachers were expected to maintain a diary/ journal, to express their feelings and thinking regarding their students, the classroom environment, their practice etc. By writing about their teaching practices, teachers had an opportunity to learn from their own thinking and reflection. (RC)

A number of the teachers described how they reflection process worked for them.

I followed an action research model involving two reflective cycles. First, I raised some important questions to be investigated. I identified the main issue through workshops and recorded these in my reflective diaries. The reflective diaries were filled in on a weekly basis during our team meetings. This process allowed me to identify the main issue about developing a Samoan writing exemplar. Secondly, I critically examined the issue and recorded the findings as data. This is to ensure that I am targeting the main issue. (T)

I asked myself the questions:

- *Why do I need to investigate this?*

- *How am I going to collect the data?*

- *Who is going to be assessed and monitored and why?*

- *How can I use this information to improve teaching and learning?*

- *What effective strategies do I need to use for writing for deeper feature?*

- *What are deeper features? (T)*

The reflection then led me to consider my role as a facilitator of discussions. What actions am I taking that may cause restriction for my students? Is it as simple as doing scaffolding? As a facilitator of learning I found my role changing from a transmitter of knowledge to someone who provides adequate scaffolding in the learning process. Through the paper she conducted several in class observation to support my program and during the end sessions of the support time we spoke in-depth about looking at questioning and its role in Numeracy. (T)

There may have been many reasons for my "failure" that inaugural year, but my professional goal since then was to make positive changes with the art outline and to further develop my practice and knowledge to get students achieving their assessments. (T)

My plan did work when I was able to break down a big idea into concepts that the students could relate to. The lesson had

an element of fun and variety, students experienced tactile manipulation with new and different things, for example, a planting exercise using potting mix and other types of food for plants. The types of comments from some of the students made to me were: "he pai tēnei mahi", or "ka taea anō e tātou te mahi tēnei āpōpō? And tuakana, teina working relationships were practiced. (T)

Collaboration in the Inquiry

Collaborative inquiry creates an opportunity for educators to work together searching for and considering various sources of knowledge (both explicit and tacit) in order to investigate practices and ideas through a number of lenses, to put forward hypotheses, to challenge beliefs, and to pose more questions. Little (2005) refers to a large body of research suggesting that conditions for improving learning and teaching are strengthened when teachers collectively question ineffective teaching routines, examine new conceptions of teaching and learning, find generative means to acknowledge and respond to difference and conflict, and engage actively in supporting one another's professional growth. In our view, collaborative inquiry – especially when it is focused - is likely to be a high leverage practice but it involves a set of skills and dispositions that are new to many schools. Participants in collaborative learning communities need to use the community to acquire a critical new set of skills in order to work together on serious issues that require investigation, reflection and challenging of ideas.

Within QTR&D there were some references to working collaboratively to understand some phenomenon better, although most of the inquiry projects were individual ones. The collaborative inquiry in QTR&D involved Research Facilitators and teachers, teachers within a cohort, and teachers within a school.

Although it was not required in QTR&D, one of the main locations for collaboration and collaborative inquiry occurred among lecturers and Research Facilitators within and across Hubs. These relationships encompassed designing the programme and investigating its implementation and impact collaboratively. Although this kind of inquiry was most pronounced in the Social Studies Hubs, it was evident in some of the other Hubs as well.

In most Hubs, the Research Facilitator(s) intentionally engaged in collaborative inquiry with the teachers, as part of their routine support process.

> *Collegial feedback was also useful as part of the forward planning for the remaining guided sessions. After completing both observations, written feedback was given to all participants and specific feedback assisted with ensuring that as practitioners we were being explicit enough in our instruction and that our pedagogical knowledge was more advanced, with the feedback given. (RF)*

> *When I shared my experience with [the RF], he pointed out that her shy nature in discussion time could be a result of her lack of understanding of basic facts and that she was withdrawing*

from speaking as she did not want to look wrong. I thought about what he had said and also considered whether in many situations I was making Angela uncomfortable to take that leap into sharing. (T)

The QTR&D face to face sessions provided teachers with a ready-made cohort with whom they could share their projects and their learning.

Collaborative inquiry involving bilingual Hub teachers has been diverse. Teachers collaborated with teachers in their own Hub, with teachers in the Literacy Hub, and with teachers in the social studies Hub. From my conversations with some of these teachers I am aware that such collaboration has been much valued. (RC)

Collaborating with peers, reviewing related literature and feedback from in-class visits allowed the teacher to shift her beliefs and perspectives on students' learning and to move forward in implementing her plan for Māori and Pasifika students' learning. (RF)

Full day sessions with all 10 teachers and the University of Waikato team were held at the University on 10 September and 12 October. The focus of these sessions was on collaboratively exploring ways in which the teachers might write up and present their research findings. The teachers shared their own learning stories and received constructive feedback from the group as well as from the university teaching team. (RF)

During workshops, teachers were open to others' ideas, resulting in modification (e.g. changing the questions to more open questions rather than close questions) and fine-tuning of processes and instruction (e.g. altering the process of data gathering and collection based on the evidence gathered). These partnerships were also reinforced by school visits by facilitators which further assisted participant teachers in their schools.

In a few cases, the teachers worked with others within the cohort or in their school between the sessions.

It was vital for me to listen, encourage and motivate staff during our meetings by sharing what I have learned through the analysis process and I found that my enthusiasm rubbed on others because I was excited about the improvement I have made on the children's writing in term3. The results I gathered were used for my presentation at a ICT conference at and for our parents' action group meeting early this term. (T)

Teachers in one Kura established the Geek club. It provided an opportunity for focussed discussion and a higher level of oral engagement with colleagues resulting from readings and discussion. (RC)

It's been so good because we're looking at what we are doing in class ... the focus on our teaching ... and that there is a group of us here at school that are involved. The facilitator is also supportive; the support she has given us has been excellent. (T)

Schools which had both mainstream and bilingual teachers participating were seen to have productive partnerships when sharing discussions took place in their schools. In other cases, teacher participants within schools and across schools in participant schools worked together by sharing ideas and identifying student weaknesses and strengths to focus on. (RC)

the discussions about their instructional practice findings as recorded on video were worthwhile because the evidence was discussed especially between the SB teachers and for some schools, EM teachers, many SB teachers discovered similar things and new things about their practice and planned their individual instructional modifications for interventions accordingly for the next set of observations. (RC)

In addition to the collaborative inquiry among some of the teachers, a number of them adopted some form of collaborative inquiry learning as a pedagogical approach with their students, planning with them and listening for their leads in where to take it next.

Students had varying degrees of agency, ranging from complete choice of research topic and focus, to choosing among options and suggestions provided by the teacher, when the overall topic focus had already been determined. Teachers facilitated their students in gathering data to support their investigations from a range of different sources. Evidence of student learning included oral and written presentations which included images (photographs, video, drawings), samples of work, engagement with experts during field trips and the use of information from traditional stories from whānau members, books and other printed materials, material samples from field trips, and the Internet. (RC)

The unit of work reflected an inquiry learning framework where students formulated their own questions and devised the process they needed to go through to answer their questions. The researcher gathered and provided students with the resources that they identified and requested (e.g., websites and books), and also provided opportunities to share and discuss their ideas and findings with fellow students and the teacher (researcher) throughout the unit. (RF)

The strategies employed in the intervention are recognised as effective pedagogical practices for Social Studies as outlined by the BES, which also align with Māori education and raising achievement for Māori. Through the learning hui, dialogue and discussion become the underpinning measures for shifting

> *conceptual understanding. The cultural responsiveness of this intervention is inherent from the need to draw on the students' cultural experiences as a foundation upon which to shift their conceptual understanding (McFarlane, 2004, pp 81-82). The students are asked to draw on their own knowledge of the tikanga required on a marae and draw parallels with other environments. (T)*

Summary of Inquiry in QTR&D

It was clear in all of the Hubs that research and inquiry were the cornerstones of the QTR&D programme. All of the participants, including the Research Coordinators, the Research Facilitators and often the lecturers, as well as the teachers, were actively engaged in investigating their practice. The tertiary courses were research courses and the inquiry project was the integrating process that connected the other components of QTR&D together for the participating teachers.

Although all of the participating teachers engaged in some kind of inquiry or research process, there was enormous variability in the teachers' research projects within and across the Hubs in terms of the area they chose to investigate, the selection of target students, how they conducted the investigation and their reflection on their practices. It is not always clear that the particular project was either focused enough or rigorous enough to create the conditions for the kind of reflection on practice that would be likely to influence students in their classes in significant ways.

There was some attention to collaborative inquiry in the courses, especially during the face to face sessions where there was sharing and consultation among teachers about their projects, but all of the teachers completed individual research projects and there was limited engagement in challenging collaboration and joint work that can lead beyond superficial change to the kind of changes in thinking and practice that influence student learning.

CHAPTER 7 RESPONDING TO CULTURE IN QTR&D

One of the key principles in QTR&D is "Culture Counts", a laudable principle that was not defined or operationalised for use in QTR&D programmes. In this analysis, we describe how QTR&D Hubs have interpreted the notion of culture and cultural responsiveness and situate these concepts within a broader context of research in New Zealand and beyond.

Within QTR&D, culture and cultural responsiveness appear to be founded on a belief that schooling is a socially constructed activity that requires adjustment to respond to increasingly culturally diverse populations, with diversity encompassing many characteristics of the students – ethnicity, socio-economic background, gender, language, special needs, educational history, etc. Although each Hub made cultural responsiveness a priority, there were substantive differences among them in the centrality of culture and in the way that they chose to address it. This analysis has attended to the different ways that cultural responsiveness was embedded in the 9 Hubs, through attention to how it has been interpreted within the university courses, the ways in which teachers have incorporated it into their instruction and research project and the cultural involvement of the community in QTR&D projects.

Cultural Responsiveness in the University Courses

The university courses attached to the Hubs were sometimes existing courses that could be adapted for QTR&D and sometimes they were new courses designed specifically for QTR&D. Because QTR&D were designed specifically to address the needs of Māori and Pasifika students, the courses all focused on the learning needs of these students. In all cases, the course integrated cultural responsiveness with curriculum and instruction and with the inquiry process. However, different Hubs addressed cultural responsiveness in very different ways. The following table gives the details of the course structure and approach to cultural responsiveness in each of the Hubs. It shows this variability in the approaches used in different locations.

Medium	Location	Approach to Cultural Responsiveness
Māori – Tikanga-Ā-Iwi	University of Auckland	This programme was embedded within Kaupapa Māori structures, practices and research methodologies that reflect and incorporate tikanga Māori, te reo Māori, and awareness of tino rangatiratanga (by Māori, for Māori). This means the way we practice, such as rituals around encounter and how we respond to each other; teacher participants being able to speak in Māori or English during classes, meetings etc; beginning each session with karakia (prayer).
Samoan Bilingual – Literacy	University of Auckland	The course in this Hub was an action research course specifically focused on developing teachers' inquiry skills and instructional approaches. The focus of the course was specifically located within a bilingual cultural context and the complex literacy needs of bilingual students, and was premised on knowing each child as a learner, including knowing the child in his/her community and cultural context. Culture, particularly bilingual Samoan cultural issues, was

		emphasised as an integral part of student learning and the tutorials were specifically focused on bilingual education and the literature related to bilingualism.
English – Literacy	University of Auckland	This course was an action research course specifically focused on developing teachers' inquiry skills and instructional approaches, focussing on the complex literacy needs of individual students, and was premised on knowing each child as a learner, including knowing the child in his/her community and cultural context.
English – Numeracy	University of Auckland	This course was split between exploring and using action research methods and examining issues of diversity, with mathematics being the medium in which these were situated. The action research project was framed as committed to culturally responsive research methods and was used to support teachers' professional learning in ways that improve mathematics and cultural outcomes for Māori and Pasifika learners.
English – Science	University of Waikato	This course was described as professional development focussing on the engagement in teaching and learning of Māori and Pasifika students in the science curriculum area. Within the framework of this course, it was acknowledged that every culture has its own ways of understanding the world and operating safely within it and different pedagogical approaches legitimize different ways of engaging with students and helping them learn. The course aimed to provide learning experiences to expand teachers' understandings what it means to teach students from different cultural backgrounds from their own and to challenge discourses about the relationship between culture and learning. The culturally responsive pedagogical learning goals were that students would: • demonstrate a clear understanding of the worldviews of the school's Māori and Pasifika communities; • acknowledge differences in values, beliefs and preferred learning strategies of their Māori and Pasifika students before engaging them in shared science topics; and • employ strategies such as whakawhanāungatanga, whakawhanāungatanga, manaakitanga, tuakana-teina, ako and mana motuhake as ways of building effective working relationships with Māori and Pasifika students.
English – Science	University of Canterbury	A fundamental principle in this course was to avoid the discrete delivery of science, Māori and Pasifika culture, and education theory/research as isolated topics. To this end, integrated themes were derived from a sequence of questions with the intention of generating integrated, but diverse outcomes. The aim was to: • enable teachers to connect learning to cultural contexts in which students are socialised in order to facilitate learning; • enable teachers to develop pedagogical practices that

		enable students to work as collaborative, inclusive and cohesive learning communities; and • provide examples of professional growth (learning about teaching and learning and researching) for participants as co-inquirers.
English – Social Studies	University of Auckland	These Hubs attended to the connection between three dimensions of educational inquiry: engagement with theory, research and classroom-based evidence related to: the social sciences curriculum domain (in particular, the first iterations of tikanga-a-iwi /social studies/social sciences Best Evidence Synthesis), Māori and Pāsifika learners (including attention to school and wider cultural contexts) and cultural responsiveness.
English – Social Studies	Victoria University	
English – Social Studies	Massey University	

Although quality teaching for diverse learners was a feature of all of the Hubs, different Hubs, and different teachers within Hubs responded to culture in different ways. In fact, the variability in approach to culture was very dramatic, with each of the Hubs choosing an approach that they found consistent with their context and the curriculum topic being addressed.

In the Māori medium Hub the programme was embedded in the Māori-medium context as an integral part of Kaupapa Māori and there was no cultural disjunction between lecturers, teachers, whānau and students, since all involved either identified as Māori, or else adopted a positioning so as to privilege Māori aspirations, viewpoints and cultural practices. In the Samoan Bilingual Literacy Hub there was a recognition that the programmes in which students are most likely to succeed are ones that achieve high levels of bilingualism for their students and focussed very specifically on issues of bilingual education, while using examples from within the Samoan culture to illustrate the changes to pedagogy that were inherent in the course, especially in relation to literacy teaching. The English medium Literacy Hub was focused on high quality literacy teaching and on teacher inquiry, with the teachers' research/inquiry project as the integrating force to engage teachers in considering specific individual students and their particular cultural background as part of who they are as individuals and as literacy learners and changing practices to concentrate on teaching them better. The Numeracy Hub specifically focused on research methods that were seen as consistent with Māori and Samoan cultures to embed mathematics in a cultural context and to investigate mathematics practice. The Social Science Hubs addressed cultural responsiveness as a concept within the discipline and focused their study on examining the different cultural contexts of the students and the teachers. In the Science Hubs the course addressed cultural responsiveness directly by examining the issue of science within cultures and examining scientific issues within different cultural contexts.

Teachers' Attention to Cultural Responsiveness

Cultural responsiveness within QTR&D teachers' classrooms was enacted in a wide range of ways that were documented in the teachers' case studies or research reports.

In the first instance, the inquiry process itself was intended to engage teachers in examination of their practices and reflection on their pedagogy. In some cases this meant that the

participant teachers engaged in a serious consideration of their own values beliefs and world views, as well as those of their students, as a backdrop to understanding how they might change their teaching and their behaviours in the classroom.

> *I have reflected on my beliefs and practice in relation to Māori and Pasifika students. Systems and routines that I had thought were culturally aware and inclusive in recognising and celebrating the range of cultures within the class may be responsible for reinforcing stereotypes, there is more that can be done to truly embrace and value diversity. (T)*

> *Perhaps more difficult than this was admitting, to myself, that I do engage in deficit thinking (Bishop, 1999). In professional discussion with associates and the course lecturer I have had the chance to examine my own pedagogy, and think about why I believe what I do. Constructs such as Skemp's (1976) relational and instructional learning have helped me to analyse my practice and clarify my thinking. I have used research and literature from the Ministry's Best Evidence Synthesis: Effective Pedagogy in Pāngarau/Mathematics to support and challenge what I believe to be influential in improving student learning. My belief in using open ended tasks to encourage discourse and lateral thinking has been reinforced. (T)*

Although it is difficult to separate the interwoven fabric of cultural responsiveness in teachers' classrooms, there were some categories of activities embedded in the papers. One approach that appeared in teacher papers was connecting learning experiences to culturally relevant or related issues. In some classes teachers intentionally elucidated, brokered and situated different world views through engagement with cultural knowledge, curriculum knowledge and relationships. Finally, the teachers utilised culturally grounded practices in their classrooms.

This analysis uses these categories to provide examples of how different participant teachers went about making their classes more culturally responsive. It is important to note that there was great variability among the teachers in how they responded to culture, with some making no mention of it and others making it the focus of their inquiry. The descriptions in each category of this section are intended to provide examples of the kinds of activities that occurred but not to suggest that the activities were widespread in the Hubs.

Connecting to Culturally Relevant Issues

Making explicit connections to the specifics of the culture and the students' place in it was a popular mechanism for engaging Māori and Pasifika students. However, it was not always an easy task.

> *I discovered that the biggest challenge I faced was to provide ideal situations that would foster the students' personal experiences, to enable them to make strong individual connections to the learning intentions. (T)*

Sometimes this was done by linking school work to events, stories, history or activities that were familiar to the students and relevant in their lives.

> *The study is grounded in a major cultural event at the school, the unveiling of a Poutokomanawa. From the dedication ceremony students have asked questions concerning totara trees and their ecology and how they were transported and carved. In response to these questions the class has a visit to an Otorohanga bush to view an ancient half completed waka, led by a Tainui elder and a visit to Jubilee Park. (T)*

> *One of the main shifts in my pedagogy was from imported resources to the use of the students' family stories as the main resource for learning. We were making connections between the content of the learning and the students' lives. These connections enabled the students to contribute from a position of strength. Increasing links between their home and school lives were evident as students talked to parents and grandparents to research their family stories. Increased dialogue sharing students' cultural knowledge and experiences enabled us to form generalisations and co-construct new conceptual understandings. My new awareness of student voice enabled me to plan next learning steps that were relevant to the students' lives, which in turn encouraged the development of new conceptual understandings. (T)*

> *In the first unit 'Leadership' we included a talk from our principal, head boy and discussions about some famous Māori leaders so it made connections to the students' lives. (T)*

Some teachers utilised culturally sensitive pedagogy to value the students' heritage and engage them in the learning.

> *This research focuses on everyday classroom events relating to questioning and retelling orally of stories. The questions will be delivered in Samoan Language during a Shared Reading Experience using texts from both languages, Samoan and English. The teacher will also ask the students to retell a narrative story orally in Samoan Language only. (T)*

> *Secada (1992) suggests that the ethnic group differences of mathematical knowledge do not reflect children's inherent ability to learn mathematics, instead that the pedagogy of school mathematics is more in line with the cultural experiences of some groups. By using problem based tasks that were based on children's everyday contexts and ways of learning it was opened up to students of all cultures. (T)*

Several teachers intentionally adopted culturally grounded practices as part of their pedagogical approach.

Under the umbrella of a kaupapa Māori pedagogy of teaching and learning, the framework that I have devised within my own classroom is for the teacher to:

- *Know that they are culturally competent before entering the classroom,*

- *Commit themselves to whakawhanaungatanga with their students,*

- *Recognise, acknowledge and celebrate the knowledge and wisdom that their students already have about the kaupapa of study.(T)*

Sometimes this meant using narrative and stories that are located and engaging in discourse patterns that are compatible with the children's culture or using instructional approaches that are familiar because they are used within the culture.

Kaupapa Māori was the pedagogy of teaching, with a strong emphasis on relationship building and respect. The students were taught in the medium of te reo Māori but also spent option times in the mainstream side of the kura. They were therefore expected to manage the culture and language transition that this involved. (RF)

The focus outcome was embedded in the success of the learning hui. Through this intervention students could develop the skills required to contribute to a classroom learning community. The students in the class have a strong sense of the participatory requirements of working together on the marae, therefore the transference of these skills (tikanga) into other environments, or societies was the focus outcome. Through three different contexts; the marae, those classrooms outside of the marae environment and the local community, students were introduced to different concepts that encouraged them to think about what successful participation looks like in different environments, or societies. (T)

The study investigates the use of oral language to strengthen comprehension. Samoan people originate from an Orators society from which power emanates. Knowledge of genealogy and tribal history gave political status and all such knowledge was passed on orally. The relations between parents and children, elders and young is one of utmost respect wherein the parents or elders teach, correct and instruct and the child listens, observes and practices what he learns. (T)

The present study explored and described a learning environment and strategy that uses whanaungatanga as the pedagogy of teaching and learning. Whanaungatanga places an emphasis on relationship building both inside and outside the classroom. The valuing of the students, who they are, where they come from and the knowledge that they bring with them is

paramount. By using a whanaungatanga based pedagogy it was theorised that the students would develop a passion for the topic of science by linking the kaupapa to their own knowledge and value system encapsulated in Te Ao Māori, while also bridging learning to Western Science theories and practice. (T)

Finally, a number of teachers made sure that the students were engaged in sharing knowledge in culturally relevant ways.

In eight of the ten projects, teachers assessed their students' learning by having them present their findings back to others. This was achieved by having individuals present their findings to the whole class, or in one case, to a whole school assembly. In six of the projects, presentations were made to younger students in different classrooms, thereby legitimising culturally important tuakana-teina relationships and responsibilities. These presentations allowed teachers to assess not only the cognitive knowledge evident, but also students' understanding of cultural issues such as caring and nurturing others and willingness to share what has been learned in an appropriate manner. (RF)

Addressing Issues of Power and Relationship

Bishop et al. (2003) recommend that to begin to make a difference to Māori student achievement teachers need to develop good relationships with Māori students, develop partnerships where both teacher and student share knowledge expertise, keep expectations for achievement high, and be culturally responsive in curriculum planning. They also need proficiency in supporting learning through a variety of strategies such as co-operative learning, feed back and feed forward and making evidence-based decisions. A number of teachers addressed the issue of relationships and power sharing in their inquiry.

In my research, sharing my experience and creating shared experiences with the focus students is integral, especially since I was as much a subject of my research as the students. Hearing from them about what was and was not working and altering strategies and experiences accordingly has kept the reciprocity of teaching and learning at the forefront of this research. I have also undertaken member checks to ensure I have understood the students' input correctly. (T)

By letting go of the power in my class, I enacted a shift in my pedagogy. I was able to share decision making with the students and class by creating our sharing circle. Students were encouraged to have sustained opportunities to participate in creating discussion with their peers and myself. They have taken on a variety of roles in which they share the power with me. (T)

Our shared stories enabled us to learn with each other and develop new understandings based in the diversity and common

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elements that we found within our experiences, knowledge and culture. This required relationships that were safe and inclusive where my students felt confident enough to share their lives with me and the rest of the group. Building a community of learners provided the environment where our learning could be successful. The students' and I were sharing personal information and developing deeper caring relationships that created a safer and more open learning environment. Our learning developed from dialogue, listening and speaking to each other and sharing our knowledge to co-construct new understandings. Dialogue, both listening and speaking, was central to our success as we learnt together. (T)

Brokering World Views

Aikenhead (2001) takes a position that supports many of the views held by Bishop and Glynn (1999) when discussing his research findings into underachievement of 'Aboriginal' students in science. He recommends science be delivered in a culturally inclusive learning environment and highlights the importance of bridging the gap between conventional science (western) and a cultural approach to teaching and learning called 'participatory learning'. He suggests that science educators can address this issue through guiding students into scientific cultures in a process referred to as 'cultural border crossings' in which the teacher facilitates the crossing of borders by becoming 'culture brokers, introducing the area of learning through both the cultural point of view and the western scientific point of view and acknowledging that both views are valid and valued. In his view, science is in itself a subculture and science learning can be a culture-making process that engages students with who they are and where they are going. Rather than science teaching being seen as a process that occurs when people of one culture take on features of another culture that are attractive to them, the teacher takes on the key role as 'culture broker.'

This study seeks to make links between Indigenous Science and Western Science as represented in the New Zealand science curriculum. It aims to promote effective student learning and engagement through links between home and school; providing lessons that meet children's needs; allowing children repeated opportunities to learn in a variety of styles; providing feedback on children's progress, and identifying and valuing children's culture (Alton-Lee, 2003). Teaching approaches incorporate narrative pedagogy and the understanding that community as a whole is believed to hold the knowledge rather than individuals. This research study will address understanding and classification of animals and their coverings. The overall focus of the study is to assess the impact of teaching about Indigenous Science to Māori and Pasifika children on the children's performance in animal classification tasks. (T)

The students were not specifically expecting that we were going to investigate Ngahere from both a Māori cultural view point as well as a Western Scientific view point. It was made clear to them that both views were relevant and worthy of

consideration. This was done through frequent sharing of
Māori legends explaining the creation of Ngahere, creatures
and plants of the Ngahere (te whanau o Tanémahuta) and other
local legends retold by myself and our schools' Kaiawhina, a
respected elder of the hapu that most of the students belong to.
Many of the stories I was unfamiliar with and so the students
were also able to see the teacher as the learner. (T)

Cultural Involvement with the Community

Cultural responsiveness in QTR&D was intended to go beyond the classroom and school walls to incorporate the involvement of whanau and community. The following quote from the minutes of a QTR&D Hui demonstrates the importance that was attributed to this kind of involvement and the recognition that making a change of this order would require substantial systemic change.

> *A key assumption is that 'culture counts' for improving the*
> *quality of teaching and learning outcomes for students through*
> *such processes as collaborative inquiry,(teachers' researching*
> *the quality of their teaching) and forming productive*
> *partnerships with Māori students/Pasifika students, parents /*
> *caregivers, whanau, hapu, iwi, communities, research*
> *facilitators and other resource people). This requires systemic*
> *change within a variety of institutions (schools, universities and*
> *the Ministry).*

Teachers in QTR&D often included reference to theories of community involvement in their reports, an indication that they were considering the importance and applicability of their students' context and community for their work in the classroom.

> *In providing equitable education for all cultures we as teaching*
> *professionals should work in collaboration with students,*
> *parents, whanau and local communities to build a relationship*
> *where all parties feel empowered to participate in developing*
> *effective learning environments and curriculum (Macfarlane,*
> *2007). A view which is supported through policy in the*
> *Ministry of Educations National Administration Guidelines*
> *(reviewed) NAG 1 where it states quite clearly that Māori must*
> *be consulted and work in partnership with the schools*
> *community to improve Māori students' achievement (2007).*
> *Had this been done competently in the past perhaps there*
> *would be no inequity issues with the current education system*
> *or underachievement of Māori students in mainstream*
> *education. (T)*

> *Atvars and Berryman (1999) support similar views when*
> *reporting on national and international data about the benefits*
> *to students when education is constructed collaboratively*
> *through partnerships with all stake-holders being students,*
> *parents, caregivers and whanau. The benefits identified were*

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improved behaviour, attendance, learning and self esteem (p.6). (T)

The students asking questions of their families when they went home and/or asking questions of kaiawhina when they returned to class provided an opening for whanau and members of the community to share and become involved in students education on their own terms (Bishop and Glynn, 1999). (T)

As part of the QTR&D project, teachers in some Hubs intentionally involved parents and the community in the unit of work that they were teaching and some even consulted members of the community during the planning of the unit.

They offered advice on appropriate protocols to follow with regard to gaining the "correct" iwi stories. (T)

Whanau and community were involved in the classrooms of teachers enrolled in QTR&D in a variety of ways, sometimes directly and sometimes indirectly to connect the work of the students to their heritage and culture. In some cases, the students carried questions and discussions home for input and response from their families and community.

Students spoke to koro, kuia, and other elders in their whānau regarding their knowledge of native plants and stories related to them. (T)

Whanau is a key component of the framework as it provides a link between the teacher, student and the student's Whanau. During each lesson two opportunities are given to discuss information and ideas gained from members of the students Whanau. At the end of each lesson the students are asked to describe a component of the lesson to a member of their Whanau and then ask for specific information that will be used at the beginning of the following lesson. At the beginning of each lesson the students' Whanau responses are recorded and used as in contexts that exemplify the learning objectives. (T)

Parents were included in all stages of the research by way of homework tasks that asked for their responses to questions about ways that the family and church organization worked. (T)

The students contacted their community organisation, set up an interview time, conducted their interviews, made sense of the answers, placed these notes into a sensible order and published these. (T)

In other cases, the students brought artefacts or knowledge to share with others at schools.

I got these from home for our project and this one's a Kawakawa leaf and this one's a Manuka and I don't know what this one is. That's another medicine and I got them from home. My uncle eats them in his sandwiches, and my mum cuts them up and puts them in our salads. (T)

After asking her whānau about leaves that are used for rongoa or medicine, the same student holds up a manuka leaf and says "...and my dad says they smoke these sometimes for fish…" meaning that they used the manuka leaves for smoking fish. (T)

Some teachers invited parents and community members into the classroom to give presentations to the students or involved them in activities with the students.

Local Māori community presented a carved pou depicting a famous warrior and leader, Hotumauea. This led to kaumatua providing stories concerning the land on which the school is sited. These stories served to motivate students and teachers to learn more about the local environment. Kaumatua guidance and support for the introduction of students to forest ecology. (T)

The stories that were used at the beginning of each session tended to be Māori purakau and pakiwaitara explaining Indigenous Science. When the children's whanau and people from the local community came to class they were able to clarify and add to the stories discussed in class. (T)

Whanau members who supported the research project "the ecology of the forest", on the learning journey were: a kaumatua and whaea (Māori elders), a parent and Board of Trustees member of the City School of one of the students. Three other mothers were very interested and supported the project especially the activities following the journey of the students.(T)

In a few cases, mostly in the Science and the Māori medium Hubs, there was a particular effort to engage the community by moving out into the community and drawing on the expertise by actively collaborating with community members.

Students visited Kaiwhenua Organics and engaged with Māori staff concerning links between organic and Māori traditional approaches to growing food crops. (T)

The unit included a trip to a local animal farm that introduced children to a range of experts in the area of animal care and welfare. While the children were wandering around the farm they were provided with countless situations to engage with staff and parents and discuss the animals and where they might belong. (T)

Five students and I attended a night walk at the base of Pirongia mountain to observe the plants and insects accompanied by a staff member of the Department of Conservation who spoke on caring for the environment, and guided us whilst viewing animals in their natural habitat at night. (T)

The students made connections with the adults that we met on our excursions. They knew one of the men who helped with the

planting because he was involved in the rugby club and the boys were keen on rugby. Another one of the men from the nursery was related to a boy that we knew in the community. (T)

Commencing the study through a day trip into Otanewainuku a protected native forest in Tauranga and inviting a local Ngawhenua Rahui (Department of Conservation) member and Tangatawhenua provided the students with an interactive and meaningful introduction to Ngahere. The Ngawhenua Rahui member, who is also Tangatawhenu, used local Māori legends to explain how the forest and local landforms came to be, as well as why they are so important to local Māori. (T)

Involving the community within the Māori medium Hub extended far beyond the QTR&D programme and the teachers in this Hub used the research project to enhance their relationships and connections.

Many Māori-medium teachers teach all curriculum areas across multiple levels and ages and also perform multiple roles in their schools and communities. These roles include participation in community events, for example, sporting and cultural events and administrative roles within the family and tribe (iwi). (RC)

Although there are many examples of community involvement in the QTR&D documents, these references come from particular Hubs, with limited mention in the reports from other Hubs and at least one Hub gave no explicit attention to involving community.

There was no attention to community involvement within the course and due to time constraints this was not promoted strongly. While teacher participants may have communicated with local school communities little interaction was reported other than individual conversations / interactions with parents. (RF)

Even the Hubs that reached out to the community indicated that this was a challenging process that takes time.

A number of teachers noted it was difficult to come up with Kaupapa Māori contexts that link to Māori aspects of the community outside of Kura particularly for those in urban areas. (RC)

It is a challenge to provide contexts and scenarios students could relate to. I need to provide lessons that foster students making personal connections to the lesson content. (T)

Summary of Responding to Culture

Cultural responsiveness is a difficult concept to grasp and to actualise. Certainly all of the Hubs were attending to issues of diversity within the student population and the students with whom they undertook their inquiry included Māori and Pasifika students, but it is clear that the language

medium of instruction, the nature of the curriculum focus, orientations to culture in the curricular area and for individual teachers, and the students in teachers' classes all contributed to the interpretation and approach to cultural responsiveness. In all of the Hubs, the participants spent time examining the Best Evidence Synthesis on quality teaching for diverse learners and they read extensively about diversity and responding to diversity generally and as a topic within the curriculum area. Each Hub addressed the issue of culture within the context of their curriculum area, based on literature about how to connect the subject to the diverse worlds of students. In the Māori medium Hub the project was embedded in Kaupapa Māori.. The English Literacy Hub focused on the prior learning and cultural context of individual students to help them develop strong English literacy skills. In the Samoan Bilingual Hub, teaching in a bilingual context was in the forefront, with specific attention to connecting with Samoan students through enhanced language skills in both languages. The Numeracy Hub concentrated on making mathematics more accessible by focusing on connections with Māori and Pasifika contexts during instruction. In Social Studies, culture was a curriculum topic that was situated and examined within the New Zealand historical context. In the Science Hub they explored the contested nature of how people come to understand the world by explicitly studying and comparing Western and Indigenous Science.

Not only did each Hub have its own orientation to culture; each teacher came to the issue with the new knowledge about teaching in diverse settings as it was presented in the course and then made plans and adaptations based on their particular school and the students in their classes.

This variability highlights the complexity of understanding cultural responsiveness in different curriculum areas and the challenges inherent in teaching students from diverse backgrounds with different cultural histories.

CHAPTER 8 IMPACT ON TEACHERS' THINKING AND PRACTICE

"Educational change depends on what teachers do and think - it is as simple and complex as that" (Fullan, 2001). What teachers know and are able to are the are the keys to student learning. Teachers are the ones who work with their students, to translate and shape curricular goals and theoretical notions into effective classroom practices. The logic of the QTR&D Programme is that involvement in an intensive and extensive professional learning process that integrated inquiry, attention to culture and quality teaching for diverse learners would create the conditions for teachers to move outside their typical contexts and engage with a broader scope of ideas and possibilities that leads to new learning that will change their thinking and their practices in ways that would influence their Māori and Pasifika students' learning. This chapter details the changes to thinking and practice that were identified in the QTR&D reports and what teachers felt contributed to the changes.

Some of the teachers described how QTR&D challenged their beliefs about teaching and about their students.

> *I have reflected on my beliefs and practice in relation to Māori and Pasifika students. Systems and routines that I had thought were culturally aware and inclusive in recognising and celebrating the range of cultures within the class may be responsible for reinforcing stereotypes, there is more that can be done to truly embrace and value diversity. (T)*

> *Perhaps more difficult than this was admitting, to myself, that I do engage in deficit thinking. (T)*

> *As part of my research I started to question some of my perspectives about teaching/learning. (T)*

> *My assumptions about teaching and learning seem to be reassessed on a daily basis. At the moment I have been reflecting a lot on the ways that we plan for our students, and how much validity that planning has. When you are a new teacher, you plan systematically, and cling to the planning for dear life. Now I am rethinking the purpose of my planning, and whether it is more about me than about the kids. I try to give my class meaningful learning experiences in authentic contexts, but are we so hung up on pre planning that we are missing their authenticity, or their right to have some input in the learning process? My rethink on this has made my planning looser, but I think it is starting to make my classroom more authentic. Tasks can now be longer, and lead in the direction the children want to go in. I have had to learn to let go of my timetable, and let the kids take me on a journey too. This seems to be improving their motivation, independence and discussion - but it's early days yet. (T)*

> *When I first started I had assumed that my passion for art would be infectious to all my students and that we would have*

100% student success all around the art department. Was I wrong! Terminology that I had assumed was 'common-knowledge' was actually unknown to the students. (T)

Wink's explanation of critical pedagogy helped to prepare me to be the teacher/learner; to let go of my preconceptions about learning and to review my relationship with my students. (T)

The key finding for the teacher was discovering that when the students were immersed in their culture they could make connections between their home, their whanau and the learning, that they were engaged and the learning became more meaningful for them. (RF)

My present working environment has enabled me to observe teachers using different pedagogies in school and to also see that the mainstream approach to teaching and learning is not always successful for Māori students. (T)

In some cases, teachers extended their understanding of curriculum, teaching methods and assessment.

A number of teachers initially saw the curriculum as essentially regulatory rather than a document that sets out what all students should know, understand, value and be able to do as a result of the programmes they undertake in Kura. Teachers' understanding of the curriculum is also related to their understanding of subject content. So it was pleasing that teachers reported enhanced teacher knowledge of Tikanga-ā-Iwi curriculum intent, content and pedagogical requirements, historical underpinnings, and the politics of curriculum after their participation in the project. (RC)

Although each curriculum has its own challenges, a positive outcome commented on by teachers was their ability to generalise their Tikanga-ā-Iwi curriculum learning to other curriculum areas. (RC)

I have a better understanding of formative assessment. (T)

They also became more comfortable and skilled with research/inquiry and being reflective practitioners.

There is evidence of change related to inquiry practices implicit in teachers and RFs work. Change in relation to teachers' inquiry is seen in their:

- *critical questions posed at the end of the cases*
- *greater attention to and ability to collect data in the classroom*
- *ability to read and to learn from the published evidence base…as well as their own data generation*

- *ability to engage in the iterative and 'messy' action research processes*

- *confidence to know they were making a difference in the small change being made*

- *critical reflection and analysis skills of the collected data (RC)*

The QTR&D project gave SB teachers opportunities to observe; transcribe; code and analyse their own instructional practice. This allowed them opportunities to self reflect, self critique and modify and fine tune their own practice. The majority of teachers in the Samoan Bilingual Hub had not previously been exposed to such a research based and research practice collaboration until the QTR&D project. The 'eye opener' experience had taught SB teachers the value of self examination and self exploration which consequently changed their way of looking at their practice given the evidence. (RC)

They now ask for help from RFs and co-inquirers when they are unsure of the next step. (RF)

Pride as they talk about their research. Some say that they now see themselves as teachers and as researchers (RF)

All of the participants in QTR&D were engaged in investigation and reflection about their practices and a number of them indicated areas of practice that they were specifically targeting to change, as part of their inquiry.

It was my aim as a professional to work hard towards the focus on links between reading and writing and to make an informed effort towards developing a specific part of my Literacy programme that would be effective for the particular group of children whom I taught. (T)

The purpose of this research was to deepen my own modelling strategies while investigating the differences and outcomes different types of modelling techniques have on student achievement. (T)

I, therefore, wanted to change practice in my Social Studies classroom to provide for achievable success in small bites through scaffolded instruction through success criteria at each stage of a social enquiry process, and for students to complete activities at different paces to allow for other cultural commitments. (T)

This intervention activity is closely aligned to two of the mechanisms within the new Best Evidence Synthesis for Social Sciences: Aligning Experiences to Important Outcomes "Purposefully aligning activities to desired outcomes supports learners in achieving those outcomes"; and Designing Experiences that Interest Learners through "the design and selection of resources impacts on interest" and trying to create

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a situation where "First hand experience of social, cultural, economic and political situations make learning real". (T)

In order for effective explicit teaching to take place, I have broken down key elements to teach deeper features explicitly (sentence starters and writers voice) to suit the needs of my class. Sentence starters seemed to be most appropriate for my level. I would encourage them to think about how you talk to your friends? Then lead on and say that you can write the beginning of your stories using words and sentence starters that you use in your everyday conversation with your friends and family. (T)

I started this topic with stories about the last few years of the Holocaust, and then jumped backwards to answer "how did it get to that?" I think this background knowledge of where the chronology was heading may have given a mental construct for the students to hang new ideas on. (T)

I presented my students with scenarios. First without clarifying learning intentions and then with clarification. They did not do well in the first scenario but the second revised lesson demonstrated more complexity in their thinking and therefore they achieved the success criteria more successfully. (T)

I will need to ask myself what is it that I am wanting from my students and what are the most important things that I want them to internalise. Discovering that for my teaching practice, it is not enough to visually display my learning intentions and success criteria, if my students do not have support to be able to reach their potential. I need to think carefully about relevant, achievable Learning Intentions and Success Criteria in order for my students to achieve. It is not enough to display this on the board. The lesson content has to stimulate and challenge them at the right level. Breaking down big ideas into smaller chunks that are relevant and meaningful to the students is the key. (T)

I have learned to use reflection, developmental action research and educational theories to inform and improve my practice. I have also come up with future recommendations for myself. I have already committed to some of these recommendations in my appraisal which I submitted last term. (T)

In a number of cases teachers attributed their changes to the reading that they were doing as part of the QTR&D programme.

The literature I read that was related to this research made me reflect on my teaching and help me recognise that I can change my style of teaching to become more effective at teaching Māori and Pasifika students. (T)

I have used research and literature from the Ministry's Best Evidence Synthesis: Effective Pedagogy in

Pāngarau/Mathematics to support and challenge what I believe to be influential in improving student learning. (T)

Bishop (2001), McNeight, and Wink (2000) suggest that we need to have a classroom environment that engages in reciprocal learning. This means that the teacher is not the fountain of all knowledge, but a partner in the learning process. They believe that the teacher needs to listen to the students for their opinions and ideas. Bishop calls this 'student voice' and 'power sharing'. So I asked the students what it was that they wanted to learn and I listened to them. (T)

But, my reading research this year made me realise that, if I want learners to express deeper conceptual understandings, I need to better support them to make connections between concepts and use concepts in well-justified ideas about society. (T)

I was challenged by specific readings around the importance of teacher expectations and effective teaching practice. (Bishop & Glynn, 1999; Alton-Lee, 2003; Wendt, 2003). (T)

In light of this [new knowledge about the student], I needed to make changes in my pedagogy to meet the needs of this student and as I sat to find alternative means I came across an interesting statement "adaptive education is systematic, focuses on the individual's needs, identifies and addresses barriers to learning, and involves planning to achieve an integrated and ongoing responsive education programme" (Alton-Lee, 2003, p. 51). (T)

Discovering the evidence base in the literature to support my hunches helped to illuminate the way. Theorists such as Wink were important sources of support; Wink's explanation of critical pedagogy helped to prepare me to be the teacher/learner; to let go of my preconceptions about learning and to review my relationship with my students . The action research methodology supports reflective practice by teachers and allows for shifts in the intervention when things do not seem to be working. For example, when the focus students did not appear to be going forwards in their understanding of new words, more reading had to be done around effective ESOL strategies and it was reassuring to find out that often there is a "two steps forward, one step back" pattern, and that I should persist with the intervention. (T)

Others mentioned the inquiry process as an important factor in their learning.

The intervention and research also brought about considerable changes in my own pedagogy. I questioned my beliefs about what worked for low achieving students and how I thought students of different cultures learn. (T)

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I am sure that the community of learners, co-constructing the decisions about learning pathways and the shifts in my teaching pedagogy has had a significant and positive impact on the teacher and the student alike, particularly my Māori students' understanding of cultural and national identity. The shift in pedagogical practice has also ensured joint participation. (T)

As a group we have gained insight into what can be done and what are effective quality teaching practices. Some of which I will be implementing into my own teaching practice both now and in the future. (RF)

This action research cycle sparked a series of questions or strategies that I would like to try given the opportunity again. I really began to look at what was working by the teachers down on the marae and decided that I would emulate some of the strategies. I have spoken to our kuia on the marae and many of the strategies that she uses were reflected in readings about culturally responsive pedagogy (peer teaching, teacher as student). I would really like to find out how closely aligned the E Tipu e Rea whanau is to models of kura kaupapa. (T)

Given my reflections that I have done with my units and demonstration of Learning Intentions and Success Criteria as well as adding different picture cues, I feel that there has been minimal change in practice to enhance student outcomes. I feel I am still on this learning path for my teaching practice to improve with every Tikanga ā-Iwi unit I do. (T)

Summary and Discussion of Impact on Teachers' Thinking and Practice

Changing thinking and practice in ways that will influence student learning is hard work. It involves challenging existing beliefs (often deeply ingrained), learning new approaches to teaching and developing new habits of behaviour (sometimes quite different from past practice)

Teachers in QTR&D described changes to their thinking, with some teachers reflecting or reconsidering their beliefs about their students and about the teaching and learning process. All of the teachers engaged in some changes to their practice as part of their research/inquiry project.

Although there were certainly changes to teachers' thinking and practice in the QTR&D Hubs, it is hard to ascertain the magnitude or the reach of these changes or the extent to which they will be sustained after the course has ended. There was little evidence that many of the teachers experienced the kind of dissonance with their current position (values and beliefs) that reconstructs or repositions their values and beliefs in ways that are likely to result in significant or sustained changes.

When teachers reported making changes, they attributed the changes in their thinking and practices to a combination of exposure to new ideas in the readings that were part of the programme and to their involvement in the inquiry project that pushed them to examine their own

practices, to imagine changes that they could make and to try them out as part of their investigation.

CHAPTER 9 IMPACT ON STUDENT OUTCOMES

The ultimate intended outcome of the QTR&D professional learning programme is enhanced learning for Māori and Pasifika students. As we described in the prior section, there is no direct relationship between teachers' learning and student learning. Teacher learning needs to be translated into teaching practices to create the conditions for students to construct their new learning. Although it is difficult to assess the impact of any programme over the short time frame of QTR&D, the Research Coordinators and Research Facilitators considered the evidence across the teachers' papers and summarised results from the teachers' inquiries.

The Research Coordinator in the English medium Hubs reported:

Variation in student outcomes including:

- *Increased student agency/efficacy*

- *Increased student knowledge and use of knowledge*

- *Increased cognitive skill development, understanding and application of ideas*

- *Improved social behaviour*

- *Improvement/increase in students' perspective taking*

- *Acceptance of cultural background*

- *Increased inclusion/membership of class*

- *Variation of teacher assessments used to capture shifts*

Analysis of teachers' final research assignments and of the five RF Hub reports indicated that there was clear evidence of reported shifts in learning outcomes for Māori students and Pasifika students. Fifty-three teachers provided either qualitative, quantitative or a mix of both measures indicating a change in the learning outcomes and behaviour of the Māori and Pasifika students in their classes within their final assignments. Teachers reported evidence of change in student learning outcomes was substantiated through standardised tests, teacher made assessments, reflections, and/or changes in observed student behaviour. Sixteen teachers reported mixed results in students' learning outcomes and six reported either no change, or change was unclear from their report. A total of 53 teachers representing 90% of the 59 teachers participating, suggested some change in student learning outcomes within their final research assignments. (RC)

The Samoan Bilingual Research Coordinator provided case studies for the 12 participant teachers. Although the teachers posed different questions and used a range of different measures, the Research Coordinator indicated that there was some evidence (often using literacy assessments) of growth in student achievement in all of the cases.

The Māori medium Research Coordinator indicated that there was evidence, both formal and informal (most often teacher observation and reflection) of improved relationships with students and gains in achievement in some areas.

Research Coordinators and Research Facilitators commented on the challenge in providing evidence of impact on students.

Many valuable learning activities may have occurred in the participating schools, but were not documented. (RC)

It is difficult to measure the impact on improved relationships between students and between students and teachers in this project. However what is important is that some teachers are more aware that changes in their teaching practice, can also lead to changes in student behaviour toward each other. (RC)

Because the nature of the evidence in the teacher reports was so varied, we considered their reports that we received to determine the robustness of the evidence for building a knowledge base about what is effective in relation to improving learning outcomes for Māori and Pasifika students. This analysis involved making a judgment about the strength and quality of the evidence that teachers presented in their reports on an ordinal scale. The evidence could be qualitative or quantitative, with the distinctions between points on the scale reflecting the extent to which the evidence was collected systematically and was considered against an external reference point, either conceptual or empirical[5]. This analysis provides a crude measure of the robustness of the evidence[6]. There was considerable variation in the styles and approaches to the inquiry process within the Hubs so the nature of the evidence was different depending on the Hub. For the most part, however, the teachers' inquiries were based on evidence that they collected in their classrooms, although some of the papers included very little evidence or the evidence was unsystematic and informal.

The data collection methods that teachers used ranged from observation, reflective diaries, video tapes, audio-tapes and teacher-made curriculum-based assessments. In some cases the evidence consisted of pre-post assessments using recognised instruments, in others there was pre-post data collection, using purpose-built methods connected to the questions being investigated. These measures were sometimes designed to assess student engagement with the material as well as their achievement. Many teachers relied on observations and classroom assessments to provide evidence of the impact of the intervention. Others relied on their personal reflections during and after the intervention had taken place. In some cases they were very systematic in their collection and in others they were more descriptive.

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[5] In this scale of robustness, 1 = no evidence, unable to identify evidence; 2 = evidence is informal, anecdotal or unsystematic opinion; 3 = evidence is systematic and reflective without reference points for interpretations; 4 = evidence is systematically collected, documented and analysed, with reference to some external criteria for interpretation (control group, norms, established criteria).

[6] Because we did not receive all of the teachers' papers, we have not included a numerical distribution but have made comments about the nature of the evidence across them.

Teachers typically used their internal reference points for identifying changes in students and relied on their own knowledge of students and sometimes on their colleagues to substantiate their judgments.

> *In the light of the evidence provided through observation as well as written materials produced by students themselves, it has proven that 'yes, fagogo has improved the Samoan Bilingual students understanding of texts'. … Proof of fagogo in enhancing students learning was more evident during the post test - students did tremendously well with identifying new words. Clarification of responses outnumbered the yes and no answers due to the student's ability to think deeply. (T)*

> *A dramatic change in students' attitude to mathematics was shown through their participation in discussions and through their journal entries. … Possibly the most important and long-term outcome of this research was students' increased interest in group discussions. Their level of engagement in group discussions was markedly higher as compared to the start of this research. (T)*

> *It is clear that children have developed a new level of understanding of animals and classification throughout the five weeks of the study, yet there continued to be confusion when classifying some animals. (T)*

> *Overall from the analysis of the children's summary paragraphs the children had a good understanding of the scientific concepts that were taught. In their paragraphs the children were able to describe what they had done and why. They were also able to identify why they got the results they did. This showed me that they did understand the scientific concepts that we had been looking at in this unit. A majority of children in both groups thought that they were effectively taught the concepts in this unit. (T)*

> *The results show a positive trend which we can say is likely to have been influenced by the intervention. In summary, the students have improved motivation, enthusiasm for mathematics, have made excellent progress particularly in understanding of place value, addition / subtraction, multiplication / division problems and now engage in a greater level of discourse. (T)*

> *There had been a change in thinking about how they saw themselves as learners. Students were starting to discuss and compare their experiences as examples in discussions. Their experiences joined to weave a pattern of learning through reciprocal dialogue. Learning content wasn't totally directed by the teacher any more. The students' increased confidence was evident in other areas of learning too. (T)*

> *As [student] interests grew, they could co-construct the direction of their learning to accommodate their individual passions. Secondly, integrating their learning with other curriculum areas provided a vehicle for deep learning to occur, other skills to be developed and a general sense of connectedness was experienced during their school day. (T)*

A few teachers used external reference points for considering their data. In areas where instruments such as asTTle were available and relevant, teachers used them to assess student progress. In other cases they used work samples and exemplars as reference points.

> *Looking at the data presented in this research, it can confidently be said that the significant improvement of achievement levels in writing are most definitely evident as proven in the asTTle results. ...The asTTle results of the sample show that all four children have shown growth ranging between 62 and 107 plus points. (T)*

> *According to the children's data based on reciprocal reading, for these 6 students, it showed the great effect of using Reciprocal teaching in my classroom reading programme. The post test results show an increase in comprehension by all students, increase in accuracy by all students and in rate by 5. One student decreased by 13 months. (T)*

> *Comparing the work samples to that of the first unit of work at the beginning of the year evidences an outstanding improvement, especially with the conceptual understanding of Social Studies. The standard of work is higher than I could ever have expected from all students; surely proof that we are on the right track.*

> *I have gathered work samples from students who have displayed various baseline knowledge, collated written and oral thoughts from students, i.e. self-assessments, and formally collected pre and post data to inform my practice. One thing I did in the second unit that I neglected to do in the first unit, was to get the students to assess their own knowledge on the kaupapa at the beginning of the unit. This was to gain a good idea of their prior knowledge. (T)*

Summary and Discussion of Impact on Students

Many of the teachers' reports provided evidence or conjecture about the impact of the changes to teachers' practices within QTR&D programme on student learning, However, these changes were often speculative and/or they were relatively small changes based on a short time frame and limited data. It is very difficult to measure the impact of small changes to practice and, without baseline data and control groups in most cases, it is impossible to determine the extent to which observed changes might have been expected as a result of typical classroom teaching.

CHAPTER 10 QTR&D – SUCCESSES, ENABLERS, CHALLENGES, AND CONSTRAINTS

A great deal has been learned from this pilot that can have application in a variety of future settings. This section describes the successes, enablers, challenges and constraints that have been highlighted by the QTR&D experience. As is often the case, many of these issues were both successes and challenges, reflecting the difficulties associated with such complex initiatives.

Successes And Enablers In QTR&D

As a pilot project, QTR&D provides a number of positive insights into the establishment and implementation of professional learning environments for teachers to enhance their capabilities in teaching diverse students communities.

Establishment of Nine QTR&D Hubs

The first success of QTR&D is that the 9 of the 10 original Hubs were established, with programmes in tertiary institutions, in a relatively short time. Given the complexity of relationships, cultures and protocols within the Ministry, within universities and in schools, it is outstanding that almost all of the Hubs were established and implemented successfully. The Ministry were able to identify locations and people who had the knowledge and the contacts to carry the programme forward in the various tertiary institutions and in schools and communities. Beginning a new programme in universities typically takes several years. QTR&D was set up in less than six months. It was a testament to the commitment of the faculty and staff associated with QTR&D within the universities that they developed or adapted courses in a relatively short time frame to design and delivery of the QTR&D.

New Relationships

QTR&D was a strong catalyst for the creation of new relationships and better understanding across many boundaries – between the Ministry and tertiary institutions, within and across tertiary institutions, among teachers within the Hubs, within classrooms between teachers and students and between classes and the whanau and communities of the students.

By establishing contracts with tertiary institutions, the Ministry introduced key Ministry priorities into the post-graduate education curriculum and created a link between the tertiary programme and current policy issues. They also took advantage of expertise and processes that were already in place within universities for delivering professional learning (including access to libraries and other resources) in a range of venues across the country. These connections provided an opportunity for the participating university staff to commence or continue their own interest in professional learning for teachers and to become more engaged with Ministry policies and initiatives, as well as contributing to their academic programme of work. The programme also stimulated partnerships across Hubs and across university departments within Hubs. These cross- and within-institution partnerships capitalised on existing expertise in a range of places to provide a programme that was richer than would have been created by individuals.

Teachers within QTR&D acknowledged the importance of support and collaboration from colleagues and administrators in the school and outside experts, especially the course lecturers and Research Facilitators, who provided ongoing opportunities for dialogue and support.

New relationships were also evident in some of the classrooms among students and between teachers and their students within the classroom community, and sometimes the teachers' inquiry projects were directed specifically at changing relationships. Some teachers in some Hubs also went to considerable effort to make connections with the community.

Teachers Investigating Their Own Practice

Unlike many professional learning programmes, QTR&D did not start with the assumption that everything teachers were currently doing was productive, nor did it denigrate teachers and the considerable skills that they bring with them. Instead, QTR&D operated from a base conviction that there is always room for change and for improvement in teaching practice and teachers can learn from examining their own practice in relation to what is already known in the area. This process can be particularly powerful if the examination is done collaboratively. The figure below depicts a model from The National College for School Leadership in England. It describes a model of professional learning that can be represented as three fields of knowledge The first field is *what is known*, the knowledge from theory, research, and best practice. The second field is *what we know*, the tacit knowledge of those involved. The third field is *new knowledge*, the new knowledge that is created together through collaborative work.

Three Fields of Knowledge (National College of School Leadership, 2006)
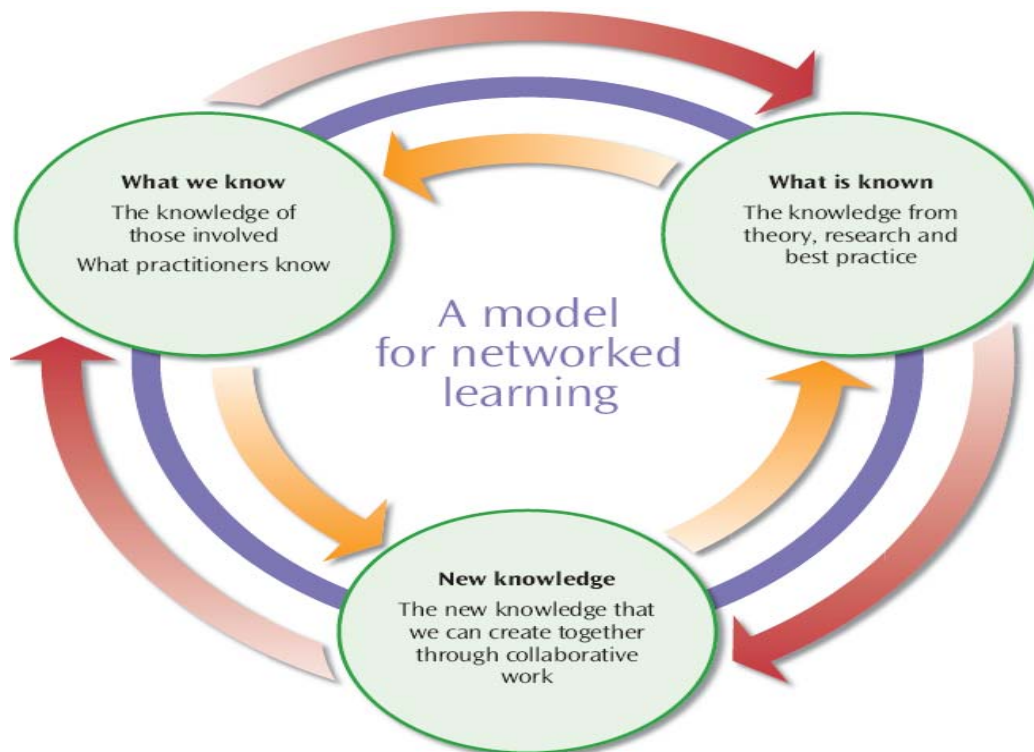
When teachers work together to study in an area and use that study to reflect on their own practices, the insights that emerge have the potential to change their mental models and their practices.

Within QTR&D, the course work and inquiry requirements engaged teachers in all phases of this process. They introduced the teachers to relevant research literature and its application in practice through the extensive research base available through the post-graduate or post-gradutae courses included library databases enabling teachers' access to national and international studies. The lecturers and Research Facilitators respected the tacit knowledge of the teachers and encouraged them to draw on what they already knew. The inquiry process integrated the two other knowledge bases together and created the conditions for the teachers to come to new understanding, individually and collectively.

Each teacher undertook an inquiry project that began with reading and discussion of ideas from literature in the area and then incorporated a process for them to stand back and consider their classroom, their students and their teaching. This is the kind of inquiry that Robinson (2003) describes as good practice: interrupting automatic classroom routines in order to inquire, in a sufficiently rigorous way, into the adequacy of their assumptions about the nature of students' needs and how to meet them.

Support for Change

Changing beliefs and practices is hard work. Most often, even if people realise that something needs to change, they "don't know what they don't know" and may be reluctant to pursue new learning alone. In fact, the most comfortable position is generally to preserve and conserve the status quo. However, dissonance and disequilibrium are critical prerequisites to new learning, but it is hard to get there without help to push beyond the comfort zones, QTR&D was designed and delivered in a way that was very supportive of the participating teachers, while also challenging them to change their beliefs and their practices. During the pilot programme, QTR&D provided over 100 teacher participants not only with a university course(s) but also a combination of engagement in the inquiry process and ongoing support from the Research Facilitators to scaffold their thinking about the transfer and integration of the ideas into their own teaching. The support of the Research Facilitators began even before enrolling to help them negotiate university procedures. Because the teachers (and often their principals) were approached to enrol in the course and many of the teachers worked together in schools, many of the principals were very supportive of their involvement in this inquiry project and some even provided additional resources and release time for the teachers to meet. Some of the universities created a new pathway for enrolment of teachers who did not have a degree and facilitated the enrolment process for the group enrolling in QTR&D.

Throughout the programme teachers were supported by the Research Facilitators and they also often had priority access to the lecturers in the course, who were available for consultations. Most of the Research Facilitators provided regular and personalised support to help the teachers integrate their learning in the tertiary course with their classroom practice and to undertake their

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research/inquiry project. In some cases they served as "critical friends" – trusted people who ask provocative questions, provides data to be examined through another lens, and offer critique of a person's work, as friends (Costa & Kallick, 1995, p. 154). In this role they could challenge assumptions, beliefs or simplistic interpretations in non-judgmental and helpful ways, remind the participants of what they have accomplished and facilitate their movement towards the next goals.

All of these supports created an environment for experimentation and reflection, in which teachers felt safe engaging in new learning and practices.

Extensive Collection of Resources and Readings

Each of the Hubs has developed and used a wide range of useful resources and readings that can form the basis of a compendium of materials for use in similar programmes. The course outlines are replete with reference lists and the Research Coordinators', Research Facilitators' and teachers' reports contain many additional references. Across the Hubs there is an extensive list of national and international resources and articles related to cultural responsiveness, practitioner research and quality teaching for diverse learners. This material could be collated and made available to others addressing the same issues.

Challenges and Constraints in QTR&D

Although the QTR&D programme operated successfully as a pilot, it was not without its challenges and trials. In this section, we describe the challenges and constraints that afflicted the programme along the way.

Recruiting and Engaging Teachers in QTR&D

The Research Facilitators were charged with responsibility for locating teachers who were "poised" to embark on a programme like QTR&D. They were often unsure about how to proceed in this search and typically made contact with schools and teachers known to them through previous contracts in professional development and assessment, teachers involved in other Ministry projects, teachers recommended by curriculum advisors, recent graduates from courses and teachers on lists of subject associations. They found that the process for attracting students in QTR&D was time consuming and stressful for many of the Research Facilitators and the potential students.

> *This was a difficult situation as avenues of communications should have initially come from school management to teachers. Given the time line for close off of enrolments, there were constant communications between RC and the principals to ensure that teachers who had initially agreed to participate or those who had recently shown interest were followed up. (RC)*

Establishing QTR&D within Tertiary Institutions

Although the universities welcomed QTR&D and responded to RFPs to mount the programme, there were some conflicts between the purposes and approaches embedded in

QTR&D and routines and procedures within tertiary institutions related to course development, recruitment, enrolment, fee payment and timing of papers.

Because creating new courses within tertiary institutions is often a long and complicated process, most of the Hubs took advantage of existing courses and adapted them to accommodate the QTR&D requirements. In other cases, the university supported the lecturers in fast-tracking a variation of a special topic course for this purpose. The university staff in all of the Hubs had to ensure that the QTR&D programme conformed to the requirements of the institution.

The challenges with recruiting participants were compounded by the short time line for enrolment. Candidates were often seeking last minute enrolment and encountered a number of rules and procedures within the universities that had to be negotiated. The participants were often unaware of all the documentation that was required to be accepted in the university, especially because some candidates needed to enrol in the university first, before QTR&D.

> *There is a two-phase enrolment for the University of Auckland. The first is enrolling into the university itself and the second is being accepted into the specific programme. Enrolling into the university requires copies of previous qualifications, evidence of birth and citizenship etc. Obtaining copies of these formalities held up a good proportion of the enrolments. This then hindered enrolment in the programme. Several members of the research team spent many hours going back and forth between the teachers and the institution trying to gauge the gaps that held up enrolments. Teachers who are typically busy do not have the time to put into this process and some would have dropped out if they did not have support in this area. (RC)*

Many would have not completed the enrolment process without the help of the Research Facilitators and, in some cases, other university personnel who worked with them to expedite the process. Even with this assistance, some potential candidates were unable to enrol because they were too late and did not have the necessary documentation.

There was sometimes confusion about who qualified and who did not for entry to a tertiary course and some of the potential candidates were not eligible, but wanted to take the course as part of an undergraduate degree.

> *The enrolment process will be problematic in that some teachers want to use the papers to complete Bachelor's Degrees, yet the project was providing Graduate and Post Graduate papers, not Bachelors papers. (RC)*

In some cases, the universities created an alternate route for teachers who did not have the required qualifications but there were more teachers who wanted to be involved but did not qualify for university enrolment.

The enrolment process was made more difficult because the Ministry of Education was paying a portion of the fees for the QTR&D participants but there was no easy mechanism to make their contribution directly to the university.

Being part of a tertiary programme meant that there were institutional timelines for completion of the papers and submission of grades. These timelines were experienced as problematic by teachers in some of the Hubs.

> *The academic requirements of the university paper were cited*
> *by some teachers as constraining their classroom research. For*
> *most teachers, it was the pressure of time; trying to complete*
> *assignments on top of juggling their full teaching and*
> *management roles which often meant constant interruptions….*
> *These teachers also felt constrained by the short timeframe of*
> *the project which did not allow time for them to find the right*
> *'head space' to immerse themselves in the evidence-base and*
> *theory underpinning their research. (RF)*

Scope of the Programme

QTR&D was a difficult programme to complete in a course that extended over two semesters or a full university year. The teams of lecturers and Research Facilitators in the Hubs were challenged by the need to address the different themes of culturally responsive pedagogy, quality teaching in the curriculum area and practitioner research, while at the same time ensuring that teachers remained confident that they could meet the academic requirements.

> *One of the biggest challenges has been the three fairly sizeable*
> *bodies of literature around, you know, the research stuff,*
> *around the cultural stuff and around the [curriculum] stuff, as*
> *well as the actual designing and developing and obtaining*
> *ethics' approval,… framing the project… and writing it up and*
> *evaluating. It is a lot to do in a 30 points course. (RF)*

The ambitious scope of the programme was exacerbated by the fact that many of the teachers required considerable professional development in relation to general issues of curriculum and pedagogy, as well as an orientation to academic work (as detailed below).

Teachers' Content and Pedagogical Knowledge

QTR&D was designed to integrate a range of areas of expertise to focus their teaching practices for Māori and Pasifika students. In most Hubs, there was an assumption that the teachers were well grounded in curriculum and pedagogy. As the programme evolved, it was clear that many teachers were not well-prepared to teach the content areas that they were studying and that they did not have the background pedagogical content knowledge. Research Facilitators and teachers themselves commented that they needed to learn more about the curriculum and teaching approaches generally, not just for teaching in a diverse setting.

> *Some teachers' knowledge of curriculum content areas,*
> *knowledge of the curriculum documents in relation to planning,*
> *of pedagogy, aims and purposes of education, and classroom*
> *management was not as developed as some of the other*
> *teachers. (RC)*

> *Teachers often had a lack of knowledge about other initiatives*
> *that underpin QTR&D (Te Kotahitanga, Te Kauhua); subject*
> *and pedagogical content. (RF)*

In the Māori medium and Samoan Bilingual Hubs, there was an additional issue associated with resources and facility with multiple languages.

> *On top of teaching about Tikanga-a-iwi content, skills and*
> *process, along with action research processes Māori teachers*
> *have been learning the Māori language of Tikanga-a-iwi so*
> *they can discuss the ideas in preparation for 'improving' their*
> *teaching. This has meant the PD providers have had to build in*
> *extra time for this to ensure the teachers are not left behind.*
> *(RC)*

Teacher Readiness for Post-Graduate Study and Inquiry

In addition to the variability in teachers, knowledge of curriculum and pedagogy, many of them had never taken post degree courses (and some had not yet completed a degree). The rigour and demands of post-graduate study was new to them and proved to be quite challenging.

> *As in previous assignments, academic writing has proved a*
> *challenge for many teachers. We have attempted to meet this*
> *need through providing models of data analysis and critical*
> *reflection, re-writing sample sections, and offering probing*
> *questions. The tension between providing this type of feedback*
> *and allowing the work to be the teachers' (particularly in terms*
> *of assessment for course work) has proved tricky in some*
> *instances. (RF)*

> *The greatest challenge for teachers has been in lifting above*
> *their experiences and data in order to pinpoint the shifts that*
> *have occurred for their learners and themselves. ((RF)*

> *This was a very high-stakes, one-off project for all teachers*
> *involved. Most were encountering resource material from*
> *academic fields (e.g. culturally responsive pedagogy and*
> *inquiry learning) that were new to them. Most had had no prior*
> *course work in research design (either quantitative or*
> *qualitative) and little or no experience in data analysis and*
> *report writing. It was a huge "ask" to expect these teachers to*
> *master all these components in one single course. It is to their*
> *very great credit that they did manage to do this. (RF)*

CHAPTER 11 LEARNING FROM QTR&D: IMPLICATIONS FOR POLICY AND PRACTICE DECISIONS

When the Ministry of Education designed the QTR&D Programme, it was a strong statement that learning and teaching of Māori and Pasifika students continues to be a high priority. In its conception, QTR&D was a bold and ambitious initiative that melded many elements (partnerships, high quality teaching, inquiry, responsiveness to culture), in order to support teachers' professional learning for working in Māori and Pasifika contexts.

QTR&D was built on solid foundations and knowledge about the elements of professional learning that might enhance learning for Māori and Pasifika students and the pilot process in the nine Hubs produced many examples of changes in teachers' beliefs and practices, some of which had promise for influencing student learning. Unfortunately, like many professional learning programmes before it, many of the findings were relatively limited or hard to measure and there was huge variability in the changes that were implemented and in the impact of these changes on teachers' thinking and practice. This is consistent with other school reform research. In the words of Richard Elmore (1996):

> We can produce many examples of how educational practice
> could look different, but we can produce few, if any,
> examples of large numbers of teachers engaging in these
> practices in large-scale institutions designed to deliver
> education to most children. (p. 11)

Although many innovations have made their way through various educational systems, they often failed to have a fundamental impact on schooling. QTR&D was designed in the hope of identifying promising avenues for professional learning to stimulate widespread change, with the promise of system application to address the seemingly intractable issue of Māori and Pasifika underachievement.

In this chapter, we identify important issues that emerged from the QTR&D pilot that the Ministry and others need to consider as they move towards policies and practices to ensure high quality professional learning for quality teaching in diverse contexts.

Finding and Recruiting Candidates

The original intent in QTR&D was to locate teachers who had been involved with previous Ministry professional development initiatives and had developed the necessary knowledge, skills and dispositions within their designated curriculum area, to conduct inquiry into their own practice with a view to improving learning outcomes for Māori and Pasifika students. Certainly each Hub included teachers who would be described as poised for change, but in most cases, the Research Facilitators indicated that finding these people was a difficult task, especially if they were trying to create learning communities within schools or clusters. They also noted that the recruiting process was a delicate one that required tact as the Research Facilitators established a relationship with schools, principals and individual teachers to introduce them to the ideas and create the motivation and energy for them to engage in this professional learning process.

It is not clear what criteria might be used to identify these ideal candidates for the kind of professional learning that is envisioned within QTR&D. Nevertheless, deciding who should participate in intensive professional learning is likely to be more complex than locating individuals.

Locating and recruiting candidates is likely to require a process in itself to ensure that all important issues are addressed. This means, determining the criteria for involvement, identifying promising contexts where the programme is consistent with school or cluster priorities and supportive leadership, connecting the programme to other dimensions of teachers' work and engaging potential schools and teachers in a range of activities to familiarise them with the goals of such a programme, garner interest and establish the conditions in the schools to support and foster the learning programme..

One possibility for recruitment might be to identify teachers who are currently participating in whole school large-scale Ministry professional development contracts focused on raising Māori and Pasifika student achievement and to offer tertiary qualifications as part of those contracts for teachers who wish to do additional assignment work. Many are built on an action research model. Some of these contracts already have university involvement and other contractors could partner with universities in order to provide the same opportunities for their teachers. A disadvantage with this approach is that most national contracts do not exist in all curriculum areas, so the process would not be universally applicable.

Situating Intensive Professional Learning for Teaching Diverse Learners

QTR&D occupied a middle space between a university course that is part of a Master's programme and a bespoke professional development programme for a particular group of teachers working in specific contexts. It was intended to provide the best of both to the participants who would participate in a focused professional learning experience and also receive credit towards a graduate or post graduate degree. Its place in this middle space was both an advantage and a disadvantage. Being part of a tertiary programme meant that the teachers involved were earning credits towards an advanced degree and they had access to high quality lecturers and university resources. Hosting QTR&D in universities also fostered the creation of a number of relationships. Although the relationships that were forged between the Ministry and people in universities were positive and resulted in QTR&D programmes in a variety of tertiary institutions, there were also barriers and constraints within the university context that made it somewhat difficult to make efficient and lasting connections and could potentially be avoided by providing a QTR&D-type programme that was not tied to the academic timelines and rules.

Although some of the Hubs experienced frustration with the bureaucracy of tertiary institutions, these are likely issues that could be streamlined if there was a long-term agreement. One Research Coordinator suggested an enrolment process that included providing all prospective participants with a list of all the required documents and verifications for new entrants and for students who had already attended post-graduate courses in advance and ensuring that they are all

prepared before the enrolment date. Enrolment could be done at specified times when the teachers from a school could come in groups and be assisted by the enrolment officer. If some portion of the fees is being covered by the Ministry, there should be an efficient process for the universities to receive the contribution directly, without involving the teachers in the process.

QTR&D comprises much more than one or two university papers. It is an integrated package that requires the engagement of schools, communities, lecturers, and on-site support personnel, working together over an extended period of time to provide a wide range of learning opportunities.

All of the Research Coordinators indicated that the ongoing individual support provided to participants by the Research Facilitators or RTLBs was an essential element in the QTR&D model.

> *There was an exceptionally high level of university staff input and support for the teachers throughout the project. This included assisting them to reflect on the course reading materials, to arrive at a specific science teaching topic, and a focussed research question, and to select and implement an appropriate research design and methodology assessing learning outcomes for themselves and well as for their Māori students. Without this level of support, expanding this professional development model to larger numbers of teachers would be a very risky process. (RF)*

In each Hub, the support was an essential part of the process as critical friends, experts and allies in the teachers' change process. The Research Facilitators (and in some cases lecturers as well) became the teachers' professional learning community and provided the forum for collaborative inquiry and reflection to move into unknown and sometimes difficult territory. Without this support many of the teachers might have given up or addressed the inquiry as "something to get done" rather than an exciting learning experience.

This raises the question of whether tertiary institutions would or could offer a professional learning programme like QTR&D if it were not funded by the Ministry of Education and, if they would not, what level of funding would be required? Although the framework for university-based courses has been established and should be possible within existing funding structures, providing hands-on support to individual teachers' within their classrooms is beyond the funding provided for most Masters' courses.

Understanding Cultural Responsiveness

QTR&D did not impose a specific definition of cultural responsiveness beyond the principles that the programme recognises that 'culture counts' and includes culturally inclusive and responsive learning communities. The differences among the QTR&D Hubs in their methods for and attention to cultural responsiveness demonstrate that being responsive to culture as a mechanism for enhancing students' learning is complex and challenging. The approach, and even the orientation to responding to culture, was grounded in each Hub by the literature and current

theories espoused in the curriculum area and by the perspectives of the individuals working in the Hub.

Culture is a multi-dimensional concept and students are multi-dimensional, with culture as only one dimension of their reality. Teaching and learning are social and cultural activities that are deeply influenced by the views and beliefs of both teachers and their students.   Cultural responsiveness is a habit of mind that involves the teachers' conceptions of knowledge, their instructional repertoire, the relationships with students, and patterns of power and participation in classrooms and beyond. Responding to the culture and unique reality of students practice is a complicated and sometimes problematic undertaking that is not well-established in education, generally.

The complexity of the lives of students was exemplified in a number of stories from QTR&D. Within the Samoan bilingual Hub some of the students were learning English as a second language, while others were Samoan heritage whose parents were English speaking and wanted their children to learn Samoan to preserve the language and heritage. Many urban Māori students have had little contact with their Māori culture, while those in Māori medium schools are immersed in the culture. Students live in the world of television, the internet, their peers and their families, as well as their language and ethnic communities. Aikenhead (2001) refers to the different subcultures which make up an individual and suggests that "cultural border crossing" occurs regularly when students transition from home to school, from peer dialogue to teacher-student dialogue. Studies from Pasifika suggest that Pasifika students who are able to transition smoothly between two worlds, (for example, between the world of home and church and the world of school) achieve higher academic success (Coxon, Anae, Mara, Wendt-Samu, & Finau, 2002).

A number of studies in New Zealand have shown that culturally responsive programmes that affirmed and incorporated language and cultural practices are related to successful learning (Bishop, Berryman, Cavanagh & Teddy, 2007). However, there is no universal method of being culturally responsive and cultural responsiveness does not imply that there are different learning styles or pedagogies for different ethnic groups. Students from different backgrounds, cultures and communities start with different prior knowledge, beliefs, preferences and interests, but the underlying learning process by which their brains acquire new knowledge and skills is essentially the same (Nuttall, 2007). Instead cultural responsiveness means that teachers come to understand each student for who they are, what they know and what they believe to be true (Nuttall, 2007). Teaching has never been a "cookie cutter" profession. Teachers use their own mix of activities and materials, adjusted to suit their understanding of what their students need, individually and as a group. Cultural responsiveness is much more complicated than introducing myths or metaphors into classes. It means interacting with the students and their families to truly understand their reality. For example, not all students in Samoan Bilingual classes come from families who speak Samoan. Their reason for choosing this class may be to preserve language that has been lost in the parent generation. Teachers cannot assume that the students are fluent in Samoan. The same is true for Māori students whose families live and work in large communities and are as well-versed

in the Pakeha culture as they are in the Māori culture and wish to maintain both cultures and languages as equally valuable dimensions of their lives. Teachers cannot make assumptions about the needs, prior knowledge or background of any particular student based on generalisations or stereotypes of what their world entails.

Given the variability in interpretation and approach to cultural responsiveness across the QTR&D Hubs, this appears to be an area that requires considerable further attention and study to clarify the concept and engage the teaching profession in ongoing dialogue about what it means to be responsive to culture, what it might look like in practice, what pitfalls exist for teachers as they pursue this direction and what kinds of supports are necessary to facilitate positive cultural responsiveness. Although the QTR&D programme was able to make an initial foray into this area that provides a basis that might be built on in future, it is unlikely that engaging in one course will to result in dramatic or sustained changes in cultural responsiveness.

Action Research and Focused Inquiry

Teacher inquiry is a vehicle that can be used by teachers to untangle some of the complexities that occur in the profession and is a critical contributing factor to improving the quality of teaching and learning outcomes for all learners. While various research paradigms i.e. process-product and qualitative have generated valuable insights into the teaching and learning process, teacher inquiry or action research are focused on the role that teachers play as knowledge-generators (Robinson, 2003).

The courses within QTR&D were action research courses situated within universities that introduced teachers to a process examining an existing problem; intervening with actions to improve practice; and monitoring the effects of the action through data collection and analysis. The courses and research/inquiry assignments in all of the Hubs focused on teachers studying about teaching for diverse learners and using this new knowledge to change and investigate their own practices. However, throughout the QTR&D reports research and inquiry have been conflated as if they are the same process. Although this is often the case in many contexts, it is important to make a distinction in light of the findings of the Professional Learning and Professional Development Best Evidence Synthesis.

The inquiry cycle that has emerged from the Professional Learning and Professional Development Best Evidence Synthesis moves the process of teachers investigating their practice closer to the students. Timperley et al., (2008) identified a specific inquiry process as a fundamental and efficient mechanism for teachers to target their own professional learning and changes to their practice to the needs of the students they are teaching. This cycle begins with a consideration of student learning needs, moves to an explicit articulation of the relationship between teacher practice and student learning in relation to the student learning requirements, and charts a course for professional learning that will deepen professional knowledge and translate into changed practice for those students.

Action research and focused inquiry both contribute to professional learning for teachers. However, if the goal is enhanced learning for students, focused inquiry begins with the students and focuses the teachers' learning and investigation of practices to students' needs directly. The elements of teacher inquiry in the model reflect the intentions of the collaborative inquiry process described in QTR&D. The inquiry process begins with an analysis of the students' learning needs using a variety of sources of evidence. The teachers begin the process of developing their professional knowledge by considering how they might have contributed to existing student outcomes and identifying what they as teachers already know about their students, the curriculum area and the principles of quality teaching in order to promote improved outcomes for their students. This knowledge and these skills then form the focus of further professional learning experiences. As a result, the teachers then construct new learning experiences for their students.

A key assumption of the inquiry model evident in QTR&D that is consistent with the details of the focused inquiry cycle is the process of checking whether the changed teaching actions and learning experiences have been effective in promoting the students' learning and well-being. Without this check there is a risk of changing teaching practice in ways that do not necessarily benefit students. Change is not the same as improvement. We raise the question, therefore, of whether the inquiry projects undertaken by the teachers should be promoted as the core business of a professional teacher, or whether they should be considered to be a "research" project that is required in tertiary study, but does not have a sustained connection to the work of teachers. Although the label "research" gives recognition to the effort involved, when participating teachers perceived the inquiry process as something uniquely associated with a university course it may have an unanticipated consequence of reducing teachers' realisation that inquiry, particularly collaborative inquiry, is an important new skill that should be embedded in their normal professional practice if outcomes for students are to improve. The data from this evaluation do not allow us to answer this question but it an important issue to consider in any future development of a model based on QTR&D. It is also possible that a shift from research (as a tertiary requirement) to inquiry (as a habit of mind for reflecting on practice), would negate the requirement of an ethics review for the teachers' projects and facilitate negotiating the university process.

Collaborative Inquiry to Change Thinking and Practice

Collaborative inquiry is a systematic process for learning from personal experience in which a group works together in repeated episodes of reflection and action to examine and learn about an issue that is of importance to them. Engaging in collaborative inquiry allows educators to work together searching for and considering various sources of knowledge (both explicit and tacit) in order to investigate practices and ideas through a number of lenses, to put forward hypotheses, to challenge beliefs, and to pose more questions. It is the foundation of conceptual change as individuals come across new ideas or discover that ideas that they believe to be true don't hold up when under scrutiny. This recognition provides an opportunity to rethink what they know and do (Earl and Timperley, 2008).

Many different forms of collaboration were evident in the QTR&D Hubs – in teams within tertiary institutions, among Research Facilitators, between teachers and Research Facilitators, among teachers within Hubs and within schools and between teachers and their students. Although these changes in relationships and support for one another were important, only a few groups appear to have moved from what Warren Little (1990) calls sporadic contacts and idiosyncratic affiliations among peers to joint work of a more rigorous and enduring sort. Her taxonomy of levels of collaboration is a useful one.

- *Storytelling and Scanning for Ideas:* occasional forays in search of specific ideas, solutions and reassurances where teachers gain information and assurance in the quick exchange of stories. Teacher autonomy rests on freedom from scrutiny and the right to exercise personal preference.

- *Aid and Assistance:* collaborative encounters that are about the ready availability of mutual aid or helping. There is the expectation that colleagues will give one another help and/or advice when asked but not interfere in another's work in unwarranted ways.

- *Sharing:* routine sharing of methods and materials or the open exchange of ideas and opinions. By making these aspects of their work accessible to others, teachers expose their ideas and intentions to one another. However, the sharing does not extend to direct commentary on curriculum, learning, and instruction.

- *Joint Work*: encounters among teachers that rest on shared responsibility for the work of teaching (interdependence), collective conceptions of autonomy, support for teachers' initiative with regard to professional practice, and group affiliations grounded in professional work.

In this taxonomy it is only in joint work that the collaboration is likely to produce genuine new knowledge for the teachers involved. As Hakkarainen et al. (2004) describe, knowledge is created through dialogue or conversations that make presuppositions, ideas, beliefs and feelings explicit and available for exploration. It is in these conversations that new ideas, tools, and practices are created, and the initial knowledge is either substantially enriched or transformed during the process. Innovative solutions arise when people in groups draw on evidence and on outside explicit knowledge and combine it with tacit knowledge in response to authentic problems (Von Krogh, Ichijo & Nonaka, 2000). When educators engage in conversations about their practice, collect evidence and discuss what the evidence means, it sets the stage for new knowledge to emerge as the participants encounter new ideas or discover that ideas that they have held as "truth" don't hold up under scrutiny and they use the recognition as an opportunity to rethink what they know and what they do.

By recognizing the natural human propensity for assimilation, it is possible to understand just how difficult "inquiry" – as a need for deep understanding – truly is. Deep understanding very often means much more than confirming what is already known as tacit knowledge (or what people think they know). It means *changing* what people think and know. Inquiry involves changing the filter in a way that fits the evidence, not just engaging with the evidence in a way that fits the filter. This is the hard work of conceptual change. It means learning to live with the ambiguity and the

feeling of dissonance when tacit knowledge and evidence are incompatible and recognizing that this kind of psychological discomfort is a necessary precursor to new understanding.

Embedding Focused Collaborative Inquiry

Having teachers engage in a single action research or inquiry project is unlikely to result in widespread change. The long-term strength of action research and the focused inquiry cycle appears when they become a way of doing business, a way of thinking, a *habit of mind*, rather than discrete events. The definition of a habit is a settled tendency of practice. Habits are things people do both frequently and automatically. An inquiry habit of mind is the habit of using inquiry and reflection to think about where you are, where you are going, how you will get there and then turn around and rethink the whole process to see how well it is working and make adjustments (Earl & Katz, 2006). It requires attitudes of openness, intellectual curiosity, and a willingness to step outside an existing frame of reference to see things in a new way (Robinson, 2003).

For collaboration to enable routine knowledge creation and sharing, practitioners need forums to make their knowledge accessible and explicit, and then to subject it to scrutiny and challenge from evidence and argument. Evidence-based dialogue carried out in a spirit of inquiry has the potential to promote powerful professional learning because as people engage in conversations about what evidence means, new knowledge can emerge as they come across new ideas or discover that ideas that they believe to be true don't hold up when under scrutiny and this recognition is used as an opportunity to rethink what they know and do (Earl and Timperley, 2008).

However, collaborative focused inquiry is not a well-established practice in education and teachers often do not feel safe disclosing their ideas or challenging their thinking. For this process to be effective, it typically needs some external expert facilitation in the particular area of focus. For some teachers, the Hub meetings and the work of the Research Facilitators in QTR&D provided the supportive link for this kind of conversation to begin to emerge as they collaboratively identified what professional knowledge needed to be deepened and skills refined in order to promote improved outcomes for students. Because collaborative inquiry constitutes the "work" of effective learning communities, it is an important new skill that requires cultivation. This means focusing attention on building learning communities within schools and beyond that embody trust, have the support of experts who are respected and knowledgeable and are consistent with the local aspirations and the needs of students.

Scope and Scale of the Programme

All of the Hubs found the QTR&D programme ambitious and challenging to deliver in a bounded time frame. As we have indicated, the major concepts within QTR&D (partnerships, quality teaching, responding to culture and collaborative inquiry) are all major areas for learning and for change. Several of these concepts, cultural responsiveness and collaborative inquiry, are relatively rare in education and there is considerable evidence that they require teachers to develop quite important but challenging new skills that require a good deal of new learning, reflection and practice to become automatic ways of working. The participating teachers undertook a single

research/inquiry project but this was not sufficient for them to become routine inquirers, always interrogating their own practice in relation to their students and the curriculum. Cultural responsiveness is much more than sharing traditions; it is also a way of being and of thinking that requires teachers to confront their own personal beliefs and their relationships with students and with communities, as well as learn new customs and new language.

The other QTR&D concepts, partnerships and quality teaching, also proved to be more difficult that might have been anticipated. Many of the teachers found themselves lacking content and pedagogical knowledge in the curriculum areas, and some were even unsure of the curriculum itself. They were constantly building their teaching and assessment repertoire, as well as working on responding to the cultural realities of their Māori and Pasifika students. QTR&D did create some important partnerships within the programme, especially across tertiary personnel in Hubs. The intent was also to engage the community, as a mechanism for enhancing relationships and connecting student's disparate worlds. In this realm, there was little evidence that the QTR&D programme inspired many connections or links with communities that were likely to extend beyond a short contact for a particular purpose.

Given the complexity and challenge of embedding these important ideas into a single programme, the QTR&D programme provided the participants with a "taster" of ideas and processes that positioned them to begin the journey of collaborative inquiry and cultural responsiveness. However, it is clear that none of the concepts could be explored and experienced in depth in a short time frame and can only be addressed in a systemic programme over an extended period of time.

Developing a Knowledge Base

One of the key goals of QTR&D was learning from the pilot study and sharing the learning with others beyond the participants. It was hoped that the reports produced by participating students, as well as the ones generated by the Research Coordinators and Research Facilitators would contribute to the knowledge base about enhancing the learning of Māori and Pasifika students.

Although QTR&D was a worthwhile professional learning project that provided over 100 teachers with exposure to new ideas and created the experiences for them to develop professionally, this was an individual process, rather than a collective knowledge-building one. Within several of the Hubs, the teachers' stories have been collected, edited and collated for sharing with other groups and there are some plans for broader sharing but, at the time of writing, it is unclear how much additional dissemination there will be.

Because each of the participating teachers engaged in an individual action research project, it is unlikely that their leaning will transport very widely beyond their own classrooms to contribute to a knowledge base for enhancing the learning of Māori and Pasifika students without some coordinated effort to bring the stories forward . We hope that the dissemination of learning from this evaluation, from the reports produced by the Research Coordinators and Research

Facilitators and from future publications can capture the big ideas in ways that can be shared more broadly to stimulate discussion and provide the foundations for future programmes.

Summary

QTR&D was initiated with the realisation that large-scale educational change is challenging and multifaceted, especially given the importance and range of dimensions that were included in the programme.   Each Hub entered into the programme wholeheartedly and mounted a valuable learning experience for the participating teachers. They also found that deep and widespread change is hard to achieve. It is clear that without thoughtful attention to the underlying theoretical and logistical issues, it is very difficult to create the kinds of conditions and experiences for teachers to genuinely learn together and change their practices, individually and collectively to support learning for Māori and Pasifika students. At its foundation, QTR&D was intended to change the hearts, minds and behaviours of the participating teachers. There is certainly evidence of some of these changes, with some of the participants, but there was tremendous variability and it is not clear how much change will be sustained over time. Nevertheless, QTR&D has provided incredible insight into the complexity of changing practices in ways that will have a significant and sustained influence on Māori and Pasifika student.

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APPENDIX A EVALUATION ADVISORY COMMITTEE AND EVALUATION TEAM

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APPENDIX B – QTR&D EVALUATION QUESTIONS AND SUB-QUESTIONS

Evaluation Questions	Guiding Sub-Questions
What is the stated intention of QTR&D?	
How is the QTR&D project being interpreted and implemented in the various Hubs?	Who are the teachers (students) in the programme? Where are they from – locations and contexts? What is their motivation for engaging in this programme? How were they recruited? Issues with recruitment? What are the characteristics of the QRT&D implementation in each Hub? Who is involved? What is the content of the programme? What resources are being used? What is the delivery approach (whole group, individual, etc)? How are the elements quality teaching, cultural responsiveness and collaborative inquiry being embedded in the QTR&D programme? What topics are teachers in the Hubs investigating?
What activities and processes have facilitated and/or constrained the implementation and influence of QTR&D?	What has facilitated implementation? – personnel, communications, relationships, logistics, funding, leadership, IT, etc. What has contributed to a positive influence of QTR&D on teachers and students? – curriculum, instruction, professional learning process, selection of participants, prior knowledge, school leadership, professional learning and development, etc. What has constrained implementation? – personnel, communications, relationships, logistics, funding, leadership, etc. What have been barriers to the positive influence of QTR&D on teachers and students? – curriculum, instruction, professional learning process, selection of participants, leadership etc.
How and to what extent has involvement in QTR&D influenced the nature and quality of partnerships to support student learning?	Who are the different groups and people who have roles in establishing and implementing each of the 10 QTR&D Hubs? What roles have they or are they playing? How have they negotiated the nature of QTR&D in each Hub? Who makes decisions? How do they interact in this process? What are the communication mechanisms? What is the nature of the relationships? What is the level of

| | relational trust across the institutions (individually and institutionally)?

What collaborative activity has taken place within the Hub? Who were the collaborators? In what tasks/activities? What resulted from the collaboration? |
|---|---|
| How is cultural responsiveness understood and being enacted in the QTR&D project? | How is cultural responsiveness being defined and expressed? Who is being cited?

What evidence is there of Māori and Pasifika whanau and other community members being deliberately involved in student learning in the 'classroom'?

To what extent and in what ways is cultural responsiveness deliberately embedded in the QTR&D university course in each Hub in teaching methodologies and between university teacher/student (teacher)?

What evidence is there of teachers' deliberate attention to cultural responsiveness in their reflective papers and their research questions? |
| How is collaborative inquiry understood and being enacted in the QTR&D project? | How is collaborative inquiry defined by each provider?

To what extent and in what ways is collaborative inquiry embedded in the QTR&D university course in each Hub?

How are the principles of collaborative inquiry embedded in the interactions in each Hub, between Hubs and between schools?

To what extent and in what ways did the teachers in each Hub use evidence about the students in their classrooms to frame their teaching?

What evidence is there of collaborative inquiry in the teachers reflective papers? |
| How and to what extent does the QTR&D project support the learning needs of students through addressing the learning needs of teachers? | How is quality teaching defined by each provider?

To what extent is there evidence that QTR&D addressed curriculum alignment, pedagogical knowledge, assessment and feedback, and pedagogical content knowledge? |
| What evidence is there of the impact on teacher thinking and practice? | What evidence is there of the impact on teacher thinking and practice and/or to changes to structures and procedures in schools? |

What evidence is there of the impact on student outcomes for Māori and Pasifika students?	What are the characteristics of the students who are participating in teachers' investigations? What evidence is there that the investigation addressed the learning needs of the students? What evidence is there of the impact on student outcomes?
How robust is the evidence of impact for building a knowledge base about what is effective in relation to changing teachers' thinking and practice and improving learning outcomes for Māori and Pasifika students?	

APPENDIX C – GLOSSARY

fagogo	traditional narrative(s)

ako	teach, learn
hui	meeting, tribal gathering
iwi	wide kinship grouping i.e. 'tribe'
karakia	incantation, prayer
kaumatua	male elder; elderly
kaupapa	cause, philosophy
kaupapa Māori	postcolonial Māori approach
koro	male elder
kotahitanga	unity
kui	female elder
kura	school
mana motuhake	independence
manaakitanga	generosity
ngāhere	forest
pakiwaitara	traditional narrative
Pāngarau	Mathematics
pou	post, pole
poutokomanawa	ceremonial carved pole
pūrakau	traditional narrative
Pūtaiao	Science
rongoā	traditional herbal remedy; medicine
tamariki	children
tangata whenua	local people, indigenous
te reo	Māori language
teina	younger sibling
tikanga	customs, cultural practices
Tikanga ā Iwi	Social Studies
tino rangatiratanga	sovereignty
tuakana	elder sibling
waka	canoe, sea or land craft
whaea	mother figure
whakawhanaungatanga	introductions, family links
whānau	extended family grouping