This 2008 case study follows on from the research carried out in 2007 for the wharekura\(^1\) Te Poutama Tau\(^2\) project with a cluster of kaiako\(^3\) now known as Kupenga. This year’s study included an additional cluster known as Waiairiki. The study focused on examining how a facilitator fostered and encouraged kaiako networks within professional development in order to support effective implementation of teaching and learning based on Te Poutama Tau. Analysis of data gathered through kaiako and facilitator questionnaires and interviews has revealed that kaiako are becoming increasingly familiar with the professional development components aimed at strengthening content and pedagogical knowledge and developing kaiako capability to sustain further development. Themes from the 2007 study of suitable facilitator characteristics and the importance of te reo pàngarau\(^4\) were reinforced and developed in the 2008 study. It is evident that kaiako need continued facilitator support to enable them to develop fully-functional kaiako networks that can sustain and support their professional growth as kaiako pàngarau\(^5\) at wharekura level.

**Background**

The wharekura Te Poutama Tau professional development and support project, developed as a result of recommendations from Trinick and Parangi’s (2007) report about improving conditions for kaiako wharekura teaching pàngarau, was piloted in 2007 (Te Maro, Averill, & Higgins, 2008). It was designed to cater for the unique working conditions of kaiako wharekura, in which a range of challenges impact on pàngarau delivery. For example, kaiako pàngarau are scattered across the country with little access to peer support and knowledgeable coaches and mentors. Timperley, Wilson, Barrar, and Fung (2007) discuss the successes of professional learning through collaborative planning and execution that occurs in many secondary school departments (p. 208). Similar practice is often not possible in kura\(^6\) because there is usually only one kaiako delivering pàngarau at each kura and this kaiako may also be teaching in other curriculum areas across several year levels. There is little professional development available in te reo Māori\(^7\) for kaiako pàngarau and little designed for kura contexts. The wharekura Te Poutama Tau was designed and delivered to be responsive to kaiako wharekura needs.

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1. Wharekura: Māori-medium secondary school(s)
2. Te Poutama Tau: numeracy development project for Māori-medium educational settings
3. Kaiako: teacher(s)
4. Te reo pàngarau: the language of mathematics in Māori
5. Pàngarau: mathematics (through the medium of Māori language, customs, and cultural lenses)
6. Kura: school(s)
7. Te reo Māori: Māori language
Nine kaiako pāngarau working in wharekura in the Hawke’s Bay, Taranaki, Waikato, Wellington, and Whanganui regions (Kupenga) participated in the initial 2007 wharekura Te Poutama Tau. Support was continued in 2008 for the Kupenga cluster (rōpū), and a new cluster of 10 kaiako wharekura from central North Island (Waiariki) was added. The wharekura Te Poutama Tau is specifically designed for kaiako of year 9 and 10 wharekura students (ākonga).

The 2007 study of the wharekura Te Poutama Tau (Te Maro et al., 2008) focused on the usefulness of the programme delivery modes (hui, facilitator in-school visits, and video conferencing) and kaiako and facilitator (kaitakawaenga) perceptions of the impact of this support on teacher knowledge and practice. The findings section of the evaluation paper included discussion of facilitator characteristics identified as essential to the success of the wharekura Te Poutama Tau and of the influence and growth of te reo pāngarau as an important factor in kaiako and ākonga progress with pāngarau. The 2007 kaiako were also starting to informally develop kaiako networks, and the 2008 study was set up in part to explore the facilitator’s deliberate attempts to encourage kaiako networks as part of the professional development.

Building Teacher Networks

Teacher networks are useful in supporting the growth of teacher knowledge and practice and have commonly been used in reform initiatives (Cobb & Smith, 2008; Coburn & Russell, 2008; Timperley et al., 2007). Definitions of “teacher network” or “professional community” vary, but, according to Coburn and Russell (2008), they are typically conceptualised to include dimensions such as “shared norms and values, a focus on student learning, social trust, deprivatisation of practice, collective responsibility, and collaboration” (p. 4). Sharing dialogue is also a feature of networks; Timperley et al. (2007) argue that the purpose of dialogue is important in developing teacher knowledge and practice within their networks. For example, dialogue may challenge beliefs and support the efficacy of competing ideas, and by adding outside expertise such as the wharekura Te Poutama Tau facilitator into the networks and dialogue, new perspectives may be introduced to the group that encourage further challenging dialogue. Timperley et al. also suggest that teacher networks can generate collective responsibility for improving student achievement through an analysis of student learning outcomes. They also warn that “…it is possible for teachers to be given generous amounts of time to collaborate and talk together, only to have the status quo reinforced” (p. 201). This underscores the need to evaluate the usefulness of focusing on building kaiako wharekura networks.

The 2008 Professional Development Delivery Model

The delivery model of the 2008 wharekura Te Poutama Tau professional development was adapted from the first year’s model, using facilitator reflections. The 2008 pāngarau professional development for both clusters (Kupenga and Waiairiki) comprised four new elements and modifications to the 2007 elements. The 2008 development included: four hui8 (one each term), Internet-based resources and interaction, and at least four in-school visits with each kaiako, arranged according to needs. The same facilitator carried out the professional development in both years. The main change from the 2007 model was to increase the focus on developing kaiako networks while continuing to provide increased opportunities for pedagogical and content knowledge development. New and modified elements included:

- hui (restructured to enhance kaiako ownership). The facilitator began each hui (for Kupenga and, to a lesser extent, Waiairiki) by gathering information from the kaiako about what they wanted to focus on and how they wanted the hui to be run. The hui sessions included content-based

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8 Hui: meeting together, usually face-to-face
workshops, learning to use WiziQ and the wiki (see bullet points below), Te Poutama Tau and its connections to NCEA, the pāngarau learning area in *Te Marautanga o Aotearoa* (Ministry of Education, 2008), and, for two hui, visiting a local wharekura for small-group teaching.

- a wiki (new element). All resources from the hui as well as kaiako-selected resources were made available through an online store of materials known as a wiki.
- WiziQ (new element). This Internet-based professional networking function was incorporated to replace the video conferencing used in 2007. WiziQ was intended to provide kaiako with access to virtual hui and workshops that could be run by the facilitator or by kaiako.
- video (new element). The video footage of kaiako working with their classes was useful in allowing individual kaiako to discuss, reflect on, and critique their work with the facilitator.
- discussions with tumuaki\(^9\) (new element) at each wharekura.

### Methodology

#### Research Aims

To build on the 2007 study, the 2008 study focused on the effectiveness of new delivery modes, the growth of kaiako networks, and how kaiako took responsibility for planning and leading their ongoing pāngarau development. In the light of the 2007 findings, the 2008 study focused on the question:

> How does an effective facilitator support kaiako networks to promote numeracy-based teaching and learning of pāngarau?

The study included investigating the facilitator’s response to the needs of kaiako and students, namely, by adapting the design of the 2007 professional development programme and putting the revised design into place. One of the facilitator’s aims for the modifications was to assist with creating sustainability for Te Poutama Tau by placing more responsibility for the development of the programme with the kaiako groups.

#### Participants

The research participants for the 2008 wharekura Te Poutama Tau study included the facilitator and 20 kaiako from 15 wharekura. There were 124 year 9 and 10 students in the Kupenga cluster and 50 year 9 and 10 students in the Waiariki cluster. The facilitator carried out the professional development in both 2007 and 2008. The kaiako involved were those carrying on from 2007 in the Kupenga cluster (four kaiako), new kaiako joining the established Kupenga cluster in 2008 (three kaiako), and those in the new Waiariki cluster (nine kaiako). Four kaiako originally involved in the 2007 wharekura Te Poutama Tau did not return in 2008. All participants in both professional development clusters were invited and agreed to take part in this study. As in 2007, all but two of the 2008 kaiako were relatively inexperienced in teaching in wharekura, most had a variety of other responsibilities apart from teaching pāngarau, and all but three were not specialist kaiako pāngarau (taught only pāngarau). One specialist kaiako was secondary-trained in mathematics (in an English-medium setting). Typically, the participating kaiako wharekura worked in isolation from colleagues in the same field because they were the sole teachers of pāngarau in their kura, were geographically distant from kaiako pāngarau in other kura, or were teaching in kura that operated according to unique philosophical underpinnings.

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\(^9\) Tumuaki – principal(s)
Method

Elements consistent with principles of Māori-centred approaches (Cunningham, 1998) and kaupapa Māori approaches (Bishop & Glynn, 1999) were used in this study:

- All aspects of the data gathering were negotiated with the facilitator, who in turn negotiated with the kaiako.
- Participation drew on established relationships (researcher-facilitator and facilitator-wharekura, facilitator-kaiako, researcher-wharekura, researcher-kaiako).
- Steps were taken to establish and maintain relationships (kanohi ki te kanohi meetings before and during data gathering).
- The facilitator was integral to data analysis and report preparation.
- Te reo Māori was an integral part of the interviews, particularly with the Waiariki cluster.

Data Collection

Data collection included:

- written questionnaires, completed by:
  - the facilitator (two questionnaires);
  - kaiako at the initial hui, February 2008 (eight completed questionnaires from the Waiariki cluster);
  - kaiako at the final hui, November 2008 (15 completed questionnaires from both clusters).

(The kaiako questionnaire is attached as Appendix J, pp. 103–104.)

- facilitator interviews (four in total), two early in the 2008 wharekura Te Poutama Tau and two towards the end of the project, with separate interviews focusing on each cluster. The interview questions were a guide, and the interviews were semi-structured.

- kaiako interviews (three cluster-kaiako interviews in total), which took place at the initial and final Waiariki hui and at the final Kupenga hui. The facilitator was present during parts of the kaiako interviews but did not participate. As in 2007, kaiako chose to be interviewed in their clusters rather than individually. As with the facilitator’s interviews, these interviews were semi-structured.

- facilitator-kaiako interviews regarding the nature of pāngarau in the kura with two kaiako (two interviews in total);

- Te Poutama Tau student data at beginning and end of the year. Usually, the kaiako collect the data, which they send to the facilitator to collate. In 2007, the data was analysed collaboratively by the facilitator and the kaiako. In 2008, the data was not yet available to do this collaboratively.

Analysis

As with the 2007 study (Te Maro et al., 2008), the analysis of data collected from kaiako, the facilitator, and students was generative and open. The research team looked for relationships between concepts and ideas that were emerging in relation to the research question. Themes were identified collaboratively by the researchers and then discussed with the facilitator as another means of authentication. The themes were then synthesised to create a story of what occurred for kaiako. Illustrative quotes are included in this paper as evidence to support the discussion. Unless otherwise stated, all quotes are from kaiako questionnaires and interviews.

10 Kanohi ki te kanohi: face-to-face
Findings from the Secondary Numeracy Project 2008

Student data from each of the two groups were sent to the facilitator, who collated and analysed them separately because the groups were at different points in the professional development. One group had not yet finished their final testing, so there was insufficient data from which to draw conclusions for the year 9 cohort of students.

**Results**

This paper reports on how each of the identified professional development factors (contextual, facilitator characteristics, design and implementation, and te reo Māori) impacted on the professional development of kaiako and then comments on the links to kaiako networks identified by kaiako in their questionnaire responses. Student beginning-and-end-of-year Te Poutama Tau data collected and analysed by the facilitator informed recommendations for future development of the wharekura Te Poutama Tau. The Waiariki group also contributed to the process after discussing the data.

**Contextual Factors**

The data indicates that a range of contextual factors exist within wharekura that affect kaiako participation in the professional development available and in the development of kaiako networks. Kaiako reported that the support systems in wharekura that facilitated this particular professional development included support from kura managers, boards of trustees, and whānau\(^\text{11}\). These support systems released kaiako to attend hui (seven responses), adjusted timetables, and provided space. Kaiako reported support factors such as: “getting data from kura teina\(^\text{12}\) saves us doing interviews” (seven responses); a dedicated support person who assisted with planning programmes (one response); and support from other Te Poutama Tau facilitators who are working with the kura teina and who assist the kaiako wharekura (five responses).

Factors that impacted negatively on the prioritising, delivery, and administration of Te Poutama Tau in participating wharekura were identified by the kaiako. There were five key contextual factors: the range of wharekura activities; the isolation of kaiako; national assessment (NCEA); availability and stability of staffing; and factors relating to the newness of wharekura as a schooling option. Further details about these factors are described below.

Commitment in other areas such as school camps and cultural events was identified as one factor limiting their progress:

> You’ve got other stuff to do as well as that – like ... sport ... and school – balancing what you as the teacher want to do and the requirements of the school. (Kaiako)

Also identified as problematic was the lack of established networks that could allow kaiako to observe others’ practice, engage in professional discussions, and reduce their isolation. Kaiako identified small numbers of people who directly or indirectly supported them in their professional role as kaiako of pāngarau. One comment was:

> ... wanting to observe someone, but it is hard when there are not many around at this level; [not being able to] see it in action; it would probably be good if there were previous teachers to share the knowledge to other teachers. (Kaiako)

The facilitator identified the strong pressure on wharekura to maximise opportunities for students to gain credits towards NCEA, which resulted in students in some wharekura working for pāngarau unit standards in year 9 or earlier. One consequence, he felt, was that the pāngarau programmes can

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\(^\text{11}\) Whānau: family, extended family, becoming family

\(^\text{12}\) Kura teina: Levels 1–2 Māori immersion educational settings, equivalent to year 0–6 or year 0–8 schools in the medium of te reo Māori
become assessment-driven and be in conflict with the student-centred, data-driven philosophy of Te Poutama Tau. A kaiako comment on the impact of NCEA was:

NCEA is the big focus in the school, and so I have put more of my effort into making sure everything is right there and that [the] kura changed the structure so that three times a week the students would do Te Poutama Tau and the other two sessions were “book work” to prepare the students for NCEA. (Kaiako)

Another kaiako comment reinforced the perception that NCEA limited their progress with the Te Poutama Tau professional development:

There’s restructuring in the school ... with me not teaching as much in the junior school as I have previously, with me focusing more on NCEA. (Kaiako)

Kaiako and the facilitator identified three types of staffing changes as having a negative impact. These included: kaiako leaving; kaiako moving out of wharekura and going to kura teina; and kaiako changing roles within the wharekura (for example, changing year levels or subject areas). One comment was:

We’ve had a level one maths teacher away for 4 to 5 weeks this year, so I have been taking his class and we’ve had a reliever in to take my class ... instead of having them five times a week, I’m only having them three times a week. (Kaiako)

Also, most kaiako in wharekura are relatively inexperienced at wharekura level and some are given positions of responsibility early in their careers:

... and being HoD, I’ve got to do that [planning] times three – for the other teachers who are teaching under me – and I have a young inexperienced year-one teacher. (Kaiako)

Wharekura are still relatively new schools with changeable environments in which management structures may be still evolving. One kaiako noted a shift in focus:

I haven’t done as big a focus on Te Poutama Tau this year as I have in previous years. (Kaiako)

Another comment was about the challenge of resourcing, both in terms of staffing and physical material:

Sharing the class with three other teachers means having to rearrange the classroom after every lesson ... and I am going to get a bigger room next year. (Kaiako)

In addition to the above points, the facilitator reported a range of factors that he felt constrained his actions in fostering the development of kaiako networks. He felt more constrained regarding the amount of time that could be devoted to each cluster due to the need to manage two clusters in 2008 compared with one cluster in 2007. He also stated that he could not always support kura at critical times (for example, with Te Poutama Tau data collection at the beginning and the end of the year) (again, because of a reduction in availability from 2007). He believed that the greater number of kaiako in total presented a greater range of individual issues and increased travel time because the wharekura were spread more widely. The facilitator (like the kaiako themselves) had other commitments, in particular, work in English-medium schools, which further limited the amount of facilitator time and energy available for wharekura.

**Facilitator Characteristics**

A key focus of this study was to investigate how a facilitator can promote kaiako networks in order to achieve effective pángarau teaching and learning. The 2007 research reported facilitator characteristics identified by kaiako that made a positive difference to their participation in the wharekura Te Poutama Tau and their success in developing their content knowledge and teaching practice. The facilitator’s
view of the professional development in 2008 was that kaikō would be helped to build capacity to sustain momentum with Te Poutama Tau through kaikō networks, with support from the facilitator only as required. Reflections from both years’ studies indicated that four key facilitator characteristics and behaviours helped develop kaikō networks. These were: first, reflecting ngāwaritanga (see below); secondly, reflecting whanaungatanga (authentic relationships); thirdly, increasing time spent with tumuaki on visits to wharekura; and finally, enhancing kaikō ownership of the professional development through adjustments to its design.

The term ngāwaritanga was coined by the Kupenga cluster in 2007 in describing the facilitator as someone who was ngāwari. Williams (1975) defines ngāwari as soft, supple, moving easily, quick, accommodating, kind, obedient (humble). When the suffix “tanga” is added to the adjective ngāwari, a word to describe a way of being is created. The 2007 descriptions (Te Maro et al., 2008) included facilitator characteristics such as being non-judgmental, meaning that kaikō could take risks without worrying about being wrong or belittled.

I think he, he also, well for me, he empowers me to actually do what I’m doing, you know, and he doesn’t make me feel like oh, you know, kōtiro me mahi koe i tenei. But actually, you know, ka whakanui i ngā wā katoa ka kitea a ia... and he likes maths. (Kaiako) (Te Maro et al., 2008, p. 32)

The same study describes a facilitator who is an active listener, making it clear that the kaikō is heard and understood, and who then presents possible pathways. The participants in both years talked about the facilitator as someone who cares about the students and about the wharekura. Being adaptable has also been a trait of the facilitator noted by kaikō, for example, overcoming the lack of relievers by staying and working with a class, being generous in the sharing of resources, and having a vision that is close to the vision of kura. These descriptors indicate that the facilitator was concerned about the students and their safety and development and was proactive rather than negative. Another aspect of ngāwaritanga was identified by a kaikō as pertaining to someone who is so knowledgeable about their subject that they are able to give control over to the kaikō, knowing when to participate and when to step back; they also have the knowledge to ask and answer the right questions. This trait of ngāwaritanga assists in building an environment of trust among the participants, which is necessary for developing networks. Many of these characteristics have also blended in with the next trait of whanaungatanga.

The characteristic of reflecting whanaungatanga is interpreted as setting up relationships as part of the community rather than as an external expert. The facilitator believed that he went into kura to assist with creating a pāngarau culture alongside the wharekura. The facilitator therefore needed to be aware of the individual wharekura cultures, which necessitated fostering authentic relationships (whanaungatanga). In practice, the facilitator needed to get to know the “players” in the kura, their beliefs about and attitudes towards pāngarau, their levels of confidence and competence in pāngarau, and their tolerance to “outsider” interference; therefore the first task was to listen and understand:

I’m not going to go into a kura to tell them you must do this, do that, and you must do it by this time – this would have an effect of takahi on the rangatiratanga of the kura and individual kaikō. It is about building trust first. (Facilitator)

Increasing the time spent with tumuaki on each wharekura visit was a deliberate strategy by the facilitator, whose intention was to strengthen the connection of the tumuaki to the Te Poutama Tau professional development. The aim was to provide greater consistency of messages about priorities

13 Kōtiro me mahi koe i tenei: girl, you should do this
14 Ka whakanui i ngā wā katoa ka kitea a ia: Every time you see him, he uplifts you.
15 Takahi: tramping or stamping on
16 Rangatiratanga: inherent right to self-govern and control
for kaiako, so that tumuaki would support what kaiako were doing in terms of resourcing, timing of events, release time for monitoring and assessment purposes, and the fit of NCEA.

**Professional Development Design and Implementation**

Through altering the professional development design to enhance kaiako ownership, the facilitator wanted to develop the participants’ capacity to eventually take charge of their own professional development. The design of delivery was therefore altered to begin the process of transferring responsibility away from the facilitator to the kaiako, as mentioned earlier. The wharekura Te Poutama Tau elements were combined to enable kaiako to work together to evaluate their practice, problem solve issues, and collectively plan for pāngarau teaching, an opportunity not normally available to these kaiako, given their geographical distance from each other. An innovation planned for 2009 was to begin another cluster through the use of seeding strategies rather than the full wharekura Te Poutama Tau programme. In this scenario, kaiako would be involved in a year of preparation before they were expected to fully implement Te Poutama Tau in their classrooms.

The remainder of this section discusses the relative effectiveness of the three modes of delivery: hui; facilitator visits to wharekura; and Internet-based delivery. Kaiako questionnaires indicated that all of the professional development delivery modes were useful for developing content and pedagogical knowledge. Ranked from most useful to least useful, the modes were: hui; kanohi ki te kanohi visits (including video recordings of facilitator and kaiako practice and discussions based on the videos); and lastly, Internet delivery (wiki, then WiziQ). More detailed comments about each mode in terms of the development of kaiako networks follow.

The design, content, and implementation of the hui facilitated development of kaiako networks. Hui gradually moved from being facilitator-driven to being designed collaboratively by a whole group. This change of ownership involved aspects such as setting up group visits for shared pāngarau teaching experiences, kaiako planning the 2009 professional development, and making decisions about the content and timing of the hui.

The facilitator found that in-school visits helped develop kaiako networks through:

- facilitator discussions with the tumuaki to help develop wharekura support for individuals and their understanding of the development as a whole;
- maintaining continuity of the professional development within and across clusters;
- sharing information and news from visits to other wharekura;
- discussions of the videos, enabling kaiako to take personal responsibility for identifying and making changes to their practice;
- ensuring that there was consistency between messages from the facilitator and the shared understandings across the clusters.

The WiziQ and wiki were intended to help develop kaiako networks and facilitate shared ownership of the learning. They included features such as a collaborative “whiteboard” and the uploading of prepared documents and presentations. The intention of the Internet-based elements was to allow the facilitator to communicate with kaiako between hui (usually, to conduct online pāngarau-content workshops) and to allow kaiako to set up WiziQ hui independently, thereby enabling them to gradually take over the organisation of WiziQ hui and further establishing the kaiako networks. WiziQ allowed kaiako to set up or request instant hui as and when the need arose.

Most of the WiziQ sessions were planned during kanohi ki te kanohi hui, with the group deciding when each session would occur and what the focus would be. There were approximately nine sessions.
Attendance at sessions was patchy, with a reliable base of only two to three kaiako attending. All WiziQ sessions were archived, and kaiako unable to attend a WiziQ session were able to access the session; some did so. There was positive kaiako feedback about the usefulness of WiziQ for their professional development and its impact on developing networks. Three kaiako were consistent users of wiki and WiziQ. Some (for example, most of the Waiariki cluster) required assistance and support with the technology. Others were not convinced that it was the best way to engage with the professional development or with each other, or that they would be able to find times that all kaiako would be free or released (in part due to the lack of available relievers for their classes). For some kaiako, the equipment needed was not available. During the year, kaiako and the facilitator contributed lesson plans, schemes, and learning activities to the wiki space. The findings indicate that further work needs to be done to improve kaiako access to, and use of, the wiki and WiziQ tools. About nine WiziQ sessions, usually focused on pāngarau-content topics (for example, fractions, proportional reasoning, and algebra), were set up for each cluster during the year, giving kaiako the opportunity to discuss these topics online. The hope was that all the kaiako involved would set up their own hui eventually, without involvement from the facilitator. This would also lead to increased leadership responsibility within the group and the growth of sustainability through collaboration among them.

The facilitator and kaiako who were videoed saw the videos as a very effective method of effecting change in kaiako practice, with several instances of rapid change and modification of practice observed as a direct result of video observation and associated discussion. In the participants’ view, the video component of the professional development provided a useful basis for professional discussion about practice within individual wharekura.

Te Reo Māori

The development of te reo Māori and te reo pāngarau was a focus area in 2008 in all modes of delivery. Kaiako identified their language growth and the need for continued development of both themselves and their students.

Kia whanake tonu te reo pāngarau ki ngā taumata teitei o te pāngarau; kia whakatairanga ake i taku reo pāngarau, kia maringi noa mai te reo ki ngā tamariki hoki; kia puta ai ngā ākonga e matatau ana ki te reo, me te reo pāngarau — ahakoa tēhea reo, kua mārama17.

The facilitator identified the need to spend more time on te reo pāngarau in 2009.

Building kaiako networks through te reo pāngarau occurred through kaiako from the kura having others to talk to who speak the same language. Kaiako mentioned that they were the only ones in their kura who talked about Te Poutama Tau and pāngarau at their levels. The hui allowed them to work with other kaiako speaking the same reo and to discuss and grow that reo with each other and the facilitator.

Student Data

The following is a selection of student achievement data from the year 9 and 10 cohort of the Waiariki and Kupenga clusters. There are 85 year 9 and 89 year 10 students represented. The data was collected at the beginning and end of the 2008 year. The facilitator analysed the patterns of achievement in terms of average stage gains. The graphs illustrate results in all domains. The numbers are small and should therefore be viewed with caution.

17 “... to develop the mathematics register to the highest pinnacles of mathematics; to elevate my own mathematics language, so that it flows for the students as well; so that students leave who are knowledgeable in the mathematical register – no matter which language is used, they understand.”
Figure 1. Data for average stage gains of all students

Figure 2. Average stage gains for year 9 students
The first graph (see Figure 1) shows the average stage gains across the two year groups. The stage gains have then been split for year 9 and year 10 to show the difference between the two years. The Waiariki kaiako had the opportunity to collaboratively view the data and make comment.

Waiariki kaiako commented that the range of data presented to them by the facilitator led to opportunities to discuss factors that were inhibiting their focus on Te Poutama Tau. The collaborative analysis of the results led to questioning what their next steps could be in discussion with the facilitator and other kaiako. By identifying the areas where the smallest stage gains were made, kaiako were able to establish future goals and establish priorities for student learning.

This type of collaborative work will continue in 2009 because shared discussion of data among kaiako can enhance planning, teaching, and learning. Undoubtedly, as kaiako better understand Te Poutama Tau, they will be better able to utilise their networks to discuss and collaboratively plan:

Ko te pātai nui mō tātou hei matapaki ai, he aha ngā take i pērā ai ngā tamariki, he aha kāore ai te nuinga i piki?\(^\text{18}\) (Kaiako)

**Discussion and Conclusions**

This paper reports on factors that have created benefits and constraints for kaiako progress in the wharekura Te Poutama Tau in 2008, including kaiako participation in professional development and in the development of kaiako networks. Supportive structures in kura management include a growing pool of support from kura teina. Kura structures that impact negatively include the transition of kaiako out of wharekura or out of the kura. NCEA was reported as having an impact on the way kura focus on pāngarau and the ways that teaching shifts away from a student-centred approach to an assessment-centred approach.

\(^\text{18}\) “The big question for us to discuss is what the reasons are for the results looking like this and why most of the students did not make higher gains.”
Kaiako again reported that the facilitator continued to play a positive role in their engagement with Te Poutama Tau. The characteristics described by both clusters as positive to their progress remain important. The facilitator reported that having more kaiako and more or less the same hours to deliver meant less coverage, slower collection of data, and less opportunity at the end of the year to collaboratively analyse data in order to plan ahead. Te reo pāngarau and the development of a pāngarau register and common language for sharing pāngarau ideas is still a focus and will continue to be so.

The changes and delivery of the wharekura Te Poutama Tau in 2008 reflected insights gained from 2007, for example, video conferencing was replaced with WiziQ, the facilitator made more opportunities to talk with tumuaki of kura, and the Waiairiki cluster took advantage of the proximity of a kura to practice the delivery of lessons and lesson progressions. The preferred mode of delivery remained kanohi ki te kanohi hui, with facilitator visits in individual kura as follow-up. The WiziQ hui had uptake by a small group. Others faced problems with using the technology and having the right tools. Finding a time that suited the kaiako in the cluster remained an issue. Video capturing kaiako practice was useful for those who used it because they were able to critique their teaching with the facilitator to inform future planning.

Alongside the results reported above, other themes emerged over the year in which the study was conducted. These insights are important to include here because they will help shape the next phase of the study. The establishment of a professional development programme dedicated to wharekura pāngarau is in itself a success. This has implications for pre-service training, specifically for kaiako wharekura. Through this initiative, kaiako, in enhancing their knowledge and practice, have also begun to develop collegial processes across wharekura, although undoubtedly there are more challenges ahead in continuing to create effective kaiako networks.

Facilitator and kaiako responses indicate that the wharekura Te Poutama Tau has shown that professional development can be successful within each wharekura as long as it recognises kaupapa Māori; that is, it must be consistent with the aims and aspirations of individual wharekura communities. This means that implementation is likely to vary from kura to kura. From these observations, it can be concluded that professional development for wharekura needs to be adaptive and able to redefine and reinvent itself to meet the needs of each individual kura and each individual kaiako, while still maintaining the integrity of the overall aim. A further conclusion consistent with te ao Māori19 is that professional development needs to be long term, with the facilitator embedded as part of the whānau of the kura. This challenges notions of sustainability, in which the support for a school would be more likely to be based over a set time, for example, where facilitators are supposed to be in a school for two years with perhaps follow-up visits for sustainability. For wharekura, an alternative, more culturally responsive approach may be that the facilitator is never able to withdraw because, to all intents and purposes, they have become part of the staff and “tangata whenua”20 in respect to the kura whānau. While the facilitator is part of the professional development, it makes no sense for them to withdraw from the wharekura because they themselves are an integral part of the sustainability of whanaungatanga. Kaiako commented that the facilitator is part of the whānau; whānau never leave – they may go away for a while, but there is a reciprocal relationship that continues in terms of nāu te rourou, nāku te rourou, ka ora te iwi21. This results in kura having facilitators who have attained the status of tangata whenua. In practice, this could mean that the facilitator continues to be present, as a colleague, who might not be there as often, but, as a whānau member, is on call when they are needed or wanted.

19 Te ao Māori: pertaining to the Māori world/Māori world-view
20 Tangata whenua: those who are now part of the particular place because they have been welcomed and share belonging
21 Nāu te rourou, nāku te rourou, ka ora te iwi: with my food basket and your food basket, the iwi can be sustained
Recommendations

Further possibilities for enhancing the effectiveness of the professional development and further developing the kaiako networks include:

- continued facilitator interaction with both existing clusters into 2009;
- supporting kaiako use of Internet systems, and resource sharing and development;
- ensuring that all New Zealand’s kura and schools are able to access the Internet by the funding of fibre-optic cabling to all kura and schools, which is a commitment to ensuring that kaiako have access to online kaiako networks quickly and without IT issues.

References


