Part Four: Report on Mātauranga Taiao

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Preliminary Note

Part Four of this report focuses on the Mātauranga Taiao initiative. Part One provides an overview of the main findings for each initiative and examines what each contributes to EfS in New Zealand. The other evaluation findings for each initiative appear in Parts Two and Three.
# Table of Contents

1. **Introduction** ..................................................................................................................................................1

2. **Methodology** ................................................................................................................................................3
   - Phase One of the evaluation ..........................................................................................................................3
   - Phase Two of the evaluation ..........................................................................................................................3
   - Report structure ..............................................................................................................................................4

3. **Development of the Mātauranga Taiao programme: Why and how did Mātauranga Taiao initially come into being?** ..................................................................................................................5

4. **Philosophy of Mātauranga Taiao programme: What are the philosophical underpinnings that guide Mātauranga Taiao developments?** ..........................................................................................7

5. **Mātauranga Taiao professional development programme: How did the Mātauranga Taiao professional development programme operate and develop during its first two years?** ............... 11
   - National noho ...............................................................................................................................................11
   - Regional support visits ................................................................................................................................11
   - Extending beyond the original students ....................................................................................................12
   - Students’ views of the Mātauranga Taiao professional development programme process .........................12

6. **Mātauranga Taiao outcomes: What do they aim to achieve, and what outcomes are perceived for students, kura and communities?** ..................................................................................13
   - Co-constructing mātauranga taiao ................................................................................................................14
   - Building support networks ..........................................................................................................................16
   - Mātauranga Māori, Mātauranga Taiao and the Marautanga o Aotearoa ......................................................16
   - Kura kaupapa Māori, kura motuhake, kura-a-iwi, kura taiao? .......................................................................18
   - Development of Mātauranga Taiao outcomes for Mātauranga Taiao students, kura and young kura students ..................................................................................................................................................18

7. **Wider connections with EfS: How does Mātauranga Taiao relate to overarching EfS goals and other EfS programmes?** ..................................................................................................................21
   - Relationship between these outcomes and overarching EfS goals ...........................................................21
   - Relationship with other EfS programmes ....................................................................................................21

8. **Future directions: What issues and opportunities emerged as the programme develops that might provide guidance for the future?** ..................................................................................23
   - Challenges ..................................................................................................................................................23
     - Epistemological issues ...............................................................................................................................23
     - Pedagogical issues ....................................................................................................................................24
     - Tensions in the positioning of mātauranga taiao .......................................................................................24
   - Suggestions for the future ..........................................................................................................................24
   - Conclusion ..................................................................................................................................................25

9. **References** ................................................................................................................................................27
1. Introduction

The Evaluation of Education for Sustainability (EfS), funded by the Ministry of Education, involves three initiatives: Mātauranga Taiao, the national EfS team within School Support Services and the Enviroschools programme. This report focuses on the first of these initiatives—Mātauranga Taiao.

Mātauranga Taiao began in 2007, and developed from a vision for targeted professional development in EfS in Māori-medium education. A national co-ordinator and two regional co-ordinators provide professional development for kaiako and Resource Teachers of Māori to enable them to foster EfS in Māori immersion programmes kura kaupapa Māori, kura-a-īwi, kura motuhake and immersion units and bilingual units within English-medium schools.

As Mātauranga Taiao development was at a much earlier stage in its development in relation to the other two EfS initiatives, I set out to explore the background, philosophical underpinnings, aims, processes and early outcomes of the programme, by answering a series of evaluation questions adapted from the overall evaluation. This report provides evaluative evidence, analysis and informed commentary, to:

- inform the ongoing work of Mātauranga Taiao
- provide a detailed backdrop to the overview evaluation report that looks across all three EfS initiatives (Eames, Roberts, Cooper & Hipkins, in press).
2. Methodology

The Mātauranga Taiao component of the overall evaluation was designed as an exploratory study, aiming to:

- explore perceived needs and visions for Efs in Māori-medium education
- contextualise Efs in kura, through discussions around worldviews and knowledge systems
- examine Māori philosophical concepts that inform the development of the programme
- explore the types of student outcomes programme staff are hoping to achieve.

While the exploratory study was informed by the evaluation questions and analysis framework that the Ministry of Education and our full evaluation team developed for the overall evaluation of the three Efs initiatives, the unique nature of Mātauranga Taiao meant that I took a more formative approach. The overall evaluation questions, and how they were adapted to be most useful for addressing the specifics of the Mātauranga Taiao initiative, are presented below.

<table>
<thead>
<tr>
<th>Overall evaluation questions</th>
<th>Mātauranga Taiao evaluation questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are the key messages, goals and intended outcomes of school-based Efs and how does each initiative align with these?</td>
<td>Why and how did Mātauranga Taiao initially come into being?</td>
</tr>
<tr>
<td></td>
<td>What are the philosophical underpinnings that guide Mātauranga Taiao?</td>
</tr>
<tr>
<td></td>
<td>How does Mātauranga Taiao relate to overarching Efs goals and other Efs providers?</td>
</tr>
<tr>
<td>How effective are the three initiatives in &quot;operationalising&quot; Efs key messages and achieving Efs goals in schools?</td>
<td>How did the Mātauranga Taiao professional development programme operate during its first two years?</td>
</tr>
<tr>
<td></td>
<td>What does it aim to achieve, and what outcomes were achieved during this period?</td>
</tr>
<tr>
<td>What are the future directions for school-based Education for Sustainability in relation to current and potential goals?</td>
<td>What issues and opportunities emerge as the programme develops that might provide guidance for the future?</td>
</tr>
</tbody>
</table>

The evaluation was conducted in two phases.

Phase One of the evaluation

The first phase of the evaluation involved interviewing Mātauranga Taiao programme staff. The main purpose of these interviews was to investigate the lead up to the development of the Mātauranga Taiao programme, the philosophical underpinnings of the programme and the types of outcomes the programme staff hoped to achieve. I interviewed the national co-ordinator and two regional co-ordinators in late 2007.

In addition to these interviews, I read various relevant documents including: the Mātauranga Taiao contract to provide professional development services between the Ministry of Education and Victoria University of Wellington; Mātauranga Taiao milestone reports; programme planning; and emails between members of the Mātauranga Taiao team and those from the wider Efs teams.

Phase Two of the evaluation

In the second phase of the evaluation I interviewed the national co-ordinator, two Mātauranga Taiao students, and the principal of the kura in which one of the Mātauranga Taiao students worked. One of the Mātauranga Taiao students was
a principal. I had planned to interview the regional co-ordinators and a third student. However, one regional co-ordinator resigned during 2008 due to illness, and by the time we were ready to interview the second regional co-ordinator, she had resigned to take up a position overseas. One of the Mātauranga Taiao students interviewed worked in a well-established kura kaupapa Māori located in a major city. The second Mātauranga Taiao student was a teaching tumuaki of a small area school (around 30 students).

I also reviewed secondary data including: student presentations of work they did in their respective kura; collated student evaluations of Mātauranga Taiao programme; co-ordinator documentation and milestone reports to the Ministry of Education; and other documents, such as memorandums and emails, that the co-ordinators felt would be helpful in this evaluation.

**Report structure**

Throughout this report I use the term “students” to refer to the students of the Mātauranga Taiao professional development programme. Most of the students involved in the Mātauranga Taiao programme were either currently employed as teachers in Māori-medium schools¹ (or units within a school) or were advisers to Māori-medium schools. I use the term “young kura students” for young students in kura kaupapa Māori. I use the term “environmental education” to describe earlier work and thinking in this area, and “Education for Sustainability” (EfS) for the present day.

The report is structured by the Mātauranga Taiao evaluation questions. It begins by describing the development of the Mātauranga Taiao programme and its philosophy in Chapter 3 and 4. Chapter 5 examines the operational processes of the Mātauranga Taiao professional development programme, and the following chapter outlines the outcomes that have emerged to date. The alignment between Mātauranga Taiao and the overall EfS goals and the work of other EfS providers are considered in Chapter 7, as are some of the challenges and possibilities for future work in this area in the final chapter.

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¹ Included here are kaiko of kura kaupapa Māori, kura-a-iwi, kura motuhake and immersion units and bilingual units within an English-medium school.
3. Development of the Mātauranga Taiao programme: Why and how did Mātauranga Taiao initially come into being?

The idea for the Mātauranga Taiao emerged from a long-time interest in environmental education by a number of Māori educators. One co-ordinator became involved in 1995 as part of the group involved in establishing guidelines for environmental education in schools, and the other two co-ordinators became involved in 2002–3.

The document, Guidelines for Environmental Education in New Zealand Schools, published by the Ministry of Education in 1999, was the culmination of various initiatives and meetings, dating back to 1995. It is from this point that one of the co-ordinators first became involved in the development of environmental education at a national level. At a hui in 1995, five Māori educationists (including one of the interviewees for this evaluation) were invited to discuss environmental education. From that time this particular co-ordinator was involved in the various discussions and her brief was to provide a Māori perspective into the development of the guidelines.

The other two co-ordinators became involved in 2002 and 2003 specifically through their involvement in a hui organised by Barry Law of the University of Canterbury. This hui, in April 2003 at Takahanga Marae in Kaikoura, brought together a group of people who were involved in Māori-medium education, either as kaiako, advisers or professional development providers, and who had an interest in environmental education.

It appears that the main objective of this hui was to start a “conversation” amongst Māori-medium education people about what environmental education means in a Māori context. One of the tasks of the hui was to come up with a resource that could be used in Māori-medium education.

There was, at this stage at least, no formal Māori strand of environmental education being talked about or delivered. Up to this point Māori involvement in environmental education had been about providing a Māori perspective which could be “added” into the “mainstream” environmental education programme. From my reading of the documentation and interview data, it appears that the Māori “voice” was subsumed into the wider environmental education agenda. This raised further questions about what effect the inclusion of Māori concepts and knowledge into an essentially Western scientific discourse had on these aspects of Māori knowledge. Law and Baker (1997, p. 231) have also noted that the consultation process undertaken by those who were developing the initial draft of the environmental education guidelines was one that was “not seen to be owned by … Māori or undertaken in a way that they saw as appropriate” (p. 231).

For the point of view of some of the people I interviewed, and from my reading of some of the documentation, this became problematic. There seemed to be at least two main concerns. The first was that Māori concepts were being used in superficial ways which lacked any deeper understanding about how they operate in Māori contexts. There were concerns that they were not being used properly and were being appropriated. These are understandable concerns; however they are not easily addressed. I will come back to these issues in Chapter 8 and discuss them in the context of

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2 In this report I refer to the Mātauranga national co-ordinator and the two regional co-ordinators simply as “co-ordinators”. The main reason for this is to maintain, as much as possible, some anonymity for the research participants. There are times, however, that I have stated the specific position of the informant.
the “cultural interface”. The second concern was that it appeared that Māori-medium education-specific-initiatives seemed to be an “after-thought” and that EfS was no different:

**Interviewer:** Was there some unhappiness about the level of service provided for Māori-medium [schooling] specifically or was it just a general belief right from the beginning that in fact we needed a Māori-driven, centred, type [programme]?

**Co-ordinator:** Well both of those. Definitely that we need a Māori-driven incentive but it’s just history repeating itself. I was a resource teacher of Māori for a year and in that time we had two or three days professional development on the Hangarau draft document, several of those support curriculum documents, the Pūtaiao one, ‘Ia Te Ora o Te Tangata’ and the reo one or something like that so over two, three days professional development on that for RTMs, and sent back into our regions to familiarise teachers with them and report back on submissions to the Ministry in a very short period of time. So you know what I mean, no release money for teachers to professionally develop them … so they [Pākehā] get those big packages to do professional development really well and the time to do it and Māori have never ever had that … and yet this is probably the kaupapa that should be led by Māori. (Mātauranga Taiao co-ordinator)

This raises questions about equity and how decisions are made about the types of professional support services that those working in Māori-medium education believe they need.

Despite these concerns, a number of leading Māori educators were interested in EfS and the opportunities it potentially offered Māori-medium education. The current national co-ordinator, who was at that time already providing professional support services for kaiako in Māori-medium education in the area of pūtaiao (science), was excited by the potential of environmental education in terms of its “fit” with the kaupapa of Māori-medium education:

So [the programme director] and my past managers had seen that this [environmental education] was an exciting area for Māori and we’d seen fantastic examples especially from [names of Māori-medium education facilitators] and how Māori-medium schools had taken up on this kaupapa. It’s not saying that they hadn’t been working in this kaupapa for a long time anyway, and for me personally being a Māori-medium teacher and obviously very excited in the areas of pūtaiao it was a great way of looking at issues in your community and providing really meaningful experiences for your tamariki. Also I found it hard managing your curriculum … [so there was] a real integrated or thematic approach … So those are elements of why we thought it was very exciting. (Mātauranga Taiao co-ordinator)

Environmental education was seen as a way of delivering or teaching aspects of pūtaiao (science) in ways that were more consistent with the more “connected” or holistic approach to knowledge in Māori-medium education, and one that was less compartmentalised than the traditional approach to teaching science in schools. The co-ordinator had previously found that the demand for pūtaiao professional support—which she was contracted to provide services for—in Māori-medium education, was not as high, and the environmental education programme was an opportunity to assist in developing quality pūtaiao programmes for kura. She also believed that the experience would be one that was more meaningful for the tamariki and their communities.

In 2006, along with her manager, she put in a proposal to the Ministry of Education to provide environmental education professional development services specifically for Māori-medium education. This proposal was accepted and a contract and Memorandum of Understanding was signed by Te Kura Māori at the University of Victoria Wellington and the Ministry of Education in 2006.
4. Philosophy of Mātauranga Taiao programme: What are the philosophical underpinnings that guide Mātauranga Taiao developments?

There are several philosophical and conceptual understandings that underpin Mātauranga Taiao which are perhaps unique to this programme. They illustrate a type of interconnectedness and interdependability between the physical environment and people (and ātua Māori) that stem from Māori epistemologies. Māori epistemologies have often been described as being holistic in the sense that they look at the whole and the relationships that constitute this whole. While I will describe the ways in which Mātauranga Taiao was described to me from interviews and documentation, I do not go into comparisons here between Māori and Western epistemologies and conceptual understandings of these programmes. However, I briefly explore this in the final chapter given that there are significant conceptual differences—stemming from the different epistemological orientations that flow on to the initiatives themselves—which frame each of the EfS initiatives and that perhaps lead to different types of actions and different reasons for actions.

Mātauranga Taiao draws explicitly and implicitly from Māori epistemologies. One of the co-ordinators referred to the knowledge that Mātauranga Taiao draws from and is informed by:

It [Mātauranga Taiao] relates to our whakapapa and taonga tuku iho, tikanga tuku iho, and so it’s encompassing our knowledge and our taonga passed down by our tīpuna and all of that. So we are always looking at or exploring the past and the present and the future—what are we leaving for our tamariki, mokopuna. (Mātauranga Taiao co-ordinator)

From my reading of the activities and types of resources that have been employed to deliver the programme to date, however, Mātauranga Taiao, although drawing predominantly from Māori epistemologies, does not preclude the use of other knowledges, such as Western knowledges.

Mātauranga Taiao literally means “environmental (as in physical surrounds) knowledge” or “knowledge about the environment”. For those whom I interviewed for this evaluation the Taiao or environment was not restricted to the physical environment, nor separated from the human and social environment. This is consistent with Māori epistemologies which make explicit connections between the gods, people and the environment through the use of whakapapa or genealogical matrices (Barlow, 1991; Best, 1995; Mead, 2003). One of the co-ordinators recalled an interview she had completed with her kuia, which for her illustrates this point:

… I was doing my own study in an interview with my nan and when she talked, all of her examples were about māra kai and practices within the physical environment and then a comment made by my aunty who sat in on the interview, ‘You know what it is, how your grandmother sustains things Māori, it’s about family for her and how she is, high expectation and that’s right from how you keep your home, how you look for the rest of the community, how you behave in the rest of the community.’ I said that’s sustainability and that’s what your grandmother is … It is not just about our physical environment, for my grandmother [sustainability is about] the whanaunga, obviously for a lot of Māori families, the whanaunga, but whānau is the most important thing. But whānau for her is definitely about how you look and how you behave … that’s her way of keeping order … (Mātauranga Taiao co-ordinator)
Here for this kuia, sustainability is about sustainable relationships in whānau as well as an interrelated sustainability between people and the physical environment.

The co-ordinators talked at length about the interconnectedness and relationships between the people and the environment. Whilst acknowledging that this notion of interconnectedness is not exclusive to Māori epistemologies, the co-ordinators used whakataukī or proverbs to articulate the relationships and interconnectedness. For example, “Ko koe ko au, ko au ko koe” (“You are me and I am you”) and “Ka mate te Taiao ka mate te tangata, ka ora te Taiao ka ora te tangata” (“If the health of the environment is compromised then so are people, if the environment is healthy then so are people”) were mentioned by one of the co-ordinators to describe her philosophical approach to Mātauranga Taiao. I am not sure of the origins of these particular whakataukī. I suspect that they were composed for environmental education specifically. These whakataukī, however, are very similar to a well-known whakataukī, “He whenua, he wahine, ngaro ai te tangata”, sometimes translated as “It is because of land and women that men perish”. Another translation of this whakataukī reads, “Without land and women, men would perish”. Suffice to say either translation talks to the interdependence of land (or the physical environment), women and men.

There is another important underlying theme in these relationships between people and the environment; that is, to “know” the environment through narratives that talk to the historical relationships. In practice, co-ordinators reported that they emphasise the learning of historical stories and narratives like pēpeha, pakiwaitara and pūrākau as integral to Mātauranga Taiao. The retention and regeneration of these narratives in te reo Māori is seen as important in the wellbeing in the physical environment; in other words, the wellbeing of the environment is not independent from these historical narratives and traditions. This idea is connected to an argument put forward by a prominent scholar in linguistic rights, Tove Skutknabb-Kangas (2000), who, in a large and comprehensive piece of research, argues that where there is a decrease in linguistic diversity, so too the biodiversity is compromised. Skutknabb-Kangas suggests that the relationship between linguistic diversity and biodiversity may “not only be correlational, but in fact may be causal” (2000, p. ix).

Another philosophical position articulated by all of the interviewees was that localised knowledge is important—and vital for its sustainability as a programme—in the rollout of the Mātauranga Taiao programme:

… so education for sustainability is quite different to that, I mean you still [have] global perspectives and make global connections and national and so forth, but local is the focus [of Mātauranga Taiao] ...

(Mātauranga Taiao co-ordinator)

This type of philosophical approach encourages using the resources that are already available in the different communities and thereby continuing to acknowledge and validate localised knowledge and experiences. Whilst the programme draws upon Māori views that are perhaps generic across all of Māoridom, it also acknowledges that there are already puna (literally “wellsprings” or sources) of knowledge in each of their communities that should be accessed. Furthermore you could argue that localised knowledge will be more appropriate and effective because it has been developed over many, many generations, and is sensitive and appropriate to the different contexts (Battiste & Youngblood Henderson, 2000). One of the co-ordinators also said that a similar point was made by a keynote speaker at the New Zealand Association of Environmental Educators conference in Dunedin in 2008.

The focus on the local also demonstrates an underlying belief that knowledge, and what counts as knowledge at the local level, is most important in terms of any programme that is developed. In a sense this is a recognition that any programme on Mātauranga Taiao needs to actually be about “taiao” or that those who are involved live in, know and are intimate with the local, and not the taiao in other parts of the world that they would have little personal experience and a “lived” knowledge of. Here I make a distinction between knowledge that it is a “lived” and “experienced” knowledge and knowledge that is a cognitive knowledge of something.
In summary, Mātauranga Taiao draws directly from Māori epistemology and views the environment in a holistic way, taking account of the environment, the people and the relationships both between the environment and people as well as between people. As such it values a view of sustainability that focuses on the interconnections between people and the environment—past, current and future. Finally, while acknowledging the importance of the global context, Mātauranga Taiao places a particular value on localised knowledge; that is, knowledge held in the community and learnt by being there.
5. Mātauranga Taiao professional development programme: How did the Mātauranga Taiao professional development programme operate and develop during its first two years?

There were about 25 professional development students, either kaiako or Resource Teachers of Māori (RTMs), who were working in or with Level 1 or Level 2 te reo Māori immersion programmes. During, and at the completion of the professional development, they are contracted to implement Mātauranga Taiao into the educational programmes at the kura or schools that they work in or with.

The Mātauranga Taiao professional development programme was divided into two distinct but interconnected activities conducted over a two-year period. Mātauranga Taiao students attended a series of week-long noho throughout the course of the two years and these were to be followed up by onsite support visits by the national and regional co-ordinators.

National noho

The noho comprised a mix of guest speakers, workshops and site visits. The co-ordinators ran a series of workshops during the course of the noho and while some of the activities were about providing and constructing environmental/sustainability knowledge there was a big emphasis on developing pedagogical knowledge. The workshops were designed to encourage students to facilitate learning by drawing upon the puna mātauranga (sources of knowledge) in each of their communities. The workshops often comprised activities where students constructed teaching resources that they could use in the classroom. Guest speakers included people who had expertise in Māori knowledge as well as those with expertise in Western science.

Three noho were held in 2007. Two were held in 2008, one in Kapiti and one in Rotorua. The noho were held in hotels and sometimes in marae.

Regional support visits

The second activity that made up the professional development programme was the follow-up or support visits at the regional level. Mātauranga Taiao employed one national co-ordinator and two regional co-ordinators (one based in the North Island and one in the South Island). One of the tasks of the regional co-ordinators was to do follow-up visits to monitor and assist Mātauranga Taiao students in the implementation of the programme into the kura/school planning and curriculum.

The Mātauranga Taiao programme lost one of the regional co-ordinators due to illness part way through 2008. Unfortunately this was the regional co-ordinator in the North Island where the bulk of the Mātauranga Taiao students were located and therefore the level of support provided for the Mātauranga Taiao students was limited. The national co-ordinator made a few visits to follow up Mātauranga Taiao students in this region. However, the support provided was less than initially planned given that the co-ordinator was based in Wellington and so some distance from the...
students. The national co-ordinator acknowledged this part of the programme was not implemented as intended as they were unable to get someone who was suitably qualified to fulfil this role.

Extending beyond the original students

One of the deliverables in the Mātauranga Taiao contract was to implement the Mātauranga Taiao professional development programme in a minimum of 40 kura and schools over the two-year implementation period. In order to achieve this, participants of the Mātauranga Taiao professional development were expected to work with their own kura or school in the first year and a second kura or school—perhaps nearby to the kura they worked in—in the second year of the Mātauranga Taiao programme. The participants essentially were to become Mātauranga Taiao advisers at their schools and in the second year of the programme in at least one other kura or school:

... our facilitators who are kaiako and RTMs out in our schools understand that there’s a high expectation of them in sustaining this kaupapa and so in their first year they were expected to work with a teacher in their school and begin to look at working with another teacher just [to spread the] philosophy and because of the minimum amount of resources that we have. So there was a high expectation of them straight away and we’ve seen the ... fruits of that, in our beginning of the second year. Already two clusters, which total about 10 teachers, have begun their own wānanga, which pretty much they’re facilitating wānanga with other teachers in their rohe. So that’s the philosophy around the delivery of the professional development ...—building capacity with the limited resources that we have. (Mātauranga Taiao co-ordinator)

While there was some evidence of students working beyond their own kura, through cluster meetings and wider wānanga (discussed in the next chapter), progress with this aspect of the programme was minimal. Given the time frame of just two years and the complexity of the tasks facing the students this is, perhaps, to be expected. The demand on the students is one of the challenges discussed in the final chapter.

Students’ views of the Mātauranga Taiao professional development programme process

The students interviewed were generally very positive about the Mātauranga Taiao programme despite some of the difficulties with the follow-up support visits in the second year of the study. In the student evaluations3 about the Mātauranga Taiao programme, students cited a wide range of things that they enjoyed about the programme and that they considered to be valuable to their learning and their work. Students particularly enjoyed the site visits, the speakers, working collaboratively and the development of their critical thinking skills. The enquiry learning, experiential and co-operative learning activities were some of the most popular and useful activities students were engaged in during the noho.

We look more closely at the outcomes that were achieved from these activities next, where I also describe the processes in more depth.

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3 This is based on the collated responses of the Mātauranga Taiao students in an evaluation of the programme at the conclusion of 2008.
6. Mātauranga Taiao outcomes: What do they aim to achieve, and what outcomes are perceived for students, kura and communities?

The work of the Mātauranga Taiao team was framed by the contract specifications, with the overall aim to develop and increase the capacity of kura and schools to implement Mātauranga Taiao programmes. The specific aims were to: increase the capacity of facilitators to implement Mātauranga Taiao into the educational programmes of the kura and schools that they work with; increase Mātauranga Taiao language proficiency and increase kaiako capacity to teach Mātauranga Taiao; provide access for kaiako to relevant research, pedagogy and quality teaching practice; and contribute to the development of Mātauranga Taiao resources.

The contract specifications appeared to specify relatively high-level outcomes which gave scope for outcomes to emerge at a local level rather than being imposed on Mātauranga Taiao students and young kura students. Awareness of needing to maintain the integrity of the Mātauranga Taiao kaupapa and the kaupapa of kura kaupapa Māori, was evident in one of the Mātauranga Taiao students’ planning notes:

Māori-medium schools are forced to conform to the dominant culture’s pedagogies and perspective of education. To ensure the unique special character of our schools [it needs to be] … recognised [that] we require the resourcing to engage local knowledgeable people to deliver kaupapa pertinent to our area and geographical area, which would be relevant to the maramataka of [name of iwi]. (Mātauranga Taiao student)

A student I interviewed also spoke of how they were encouraged to draw from their local traditions:

Āe, … me mihi ka tika au, he kaha rātou ki te opeope, ki te akiaki i a mātou kia waihanga kaupapa e hāngai ki ō mātou hapori kē. (Mātauranga Taiao student)

This is a useful approach, one that is consistent with the overall programme approach which was for the co-ordinators and participants to value the importance of localised knowledge and to co-construct knowledge about Mātauranga Taiao.

In light of this I present the outcomes that I saw generated during the period of the evaluation in two ways. First, I outline four thematic outcomes that were evident across all of the data I collected: co-construction of mātauranga Taiao; building support networks; curriculum development; and whole-kura change. In discussing these I also relate them back to the processes involved in the Mātauranga Taiao professional development programme since the philosophical underpinnings of the programme suggest that processes and outcomes are inextricably linked. Second, I highlight some of ways the students implemented aspects of Mātauranga Taiao in their own kura and schools.
1. Co-constructing mātauranga taiao

In Chapter 4 I discussed how one of the ideas underlying the philosophical approach of the co-ordinators and the programme was of building knowledge together or “co-constructing” knowledge. This was evident in the pedagogical processes that the co-ordinators employed, and all co-ordinators suggested that they moved away, as much as possible, from a transmission of knowledge model to one of creating the knowledge together:

> at the beginning we stress to them [the students] that they are—they are not going to be ‘fed’ … maybe for a little while they’ll be ‘fed’, but they’ll be active facilitators as well. So that’s what the professional development looked like … as much as we would be able to co-construct … that’s what we planned.

(Mātauranga Taiao co-ordinator)

In reality, the delivery of Mātauranga Taiao in the first year of the programme began with more traditional didactic teaching where a wide range of guest speakers gave presentations to the participants, but this moved over time to supporting more of a focus on localised knowledge. One of the interviewees commented on this transition:

> … but it wasn’t until our third national hui that they began to make comments like listening [to what ‘experts’ were saying about environmental education] is all fine and good, these models are all fine and good, where are the whakaaro Māori? … and they’ve said we can’t deliver that, we can give you a lot of Māori literature in the area of the taiao—we’ve had a few speakers, Māori speakers in the area of taiao and we’ve had to because of the makeup of our team put it back to them and say who are the kaumātua within your rohe that can talk about these issues because they are there and the holding of these wānanga that’s where they’ve appeared because we can’t deliver that. (Mātauranga Taiao co-ordinator)

One of the main ways in which co-constructing knowledge was achieved was through encouraging students to draw upon the knowledge and skills of the people who were a part of their communities. Interviews and student evaluation forms suggested that a number of the activities and workshops focused on inquiry learning encouraging the students to involve members of their communities who had knowledge in a particular area relevant to their area of study. I saw several examples of students accessing knowledge and insights from kaumātua and the experts already in their communities—or the puna—to construct and inform their programmes. The following quote discusses a wānanga where Wiremu Tawhai, a well respected and knowledgeable kaumatua of Te Whānau-a-Apanui, and the principal of another kura who was also very knowledgeable about aspects of the bush, spoke at a gathering of kura-a-iwi representatives:

> I tono mātou ki a Wiremu Tāwhai, ko ia tētahi o ō mātou kaikōrero i taua wānanga ka whakawhāiti ētahi kaiako i ngā kura kaupapa, kura ā-īwi o tō mātou rohe. Ka haere mai, ka noho tahi, kai tahi, ko ērā tikanga i runga i te whakaaro kotahi … ko tōna kōrero e hāngai ana ki ngā kōrero a kui mā, a koro mā, … tōna titiro ki te ao a ia he tama i tipu ake kei waenganui i a rātou mā. I pērā hoki tō mātou kaikōrero tuarua ko Mac Manis, ko ia te tumuaki o Te Whāiti iākia, ā, mīharo katoa a ki āna kōrero, he tangata matatua ki te ngahere, e hia ngā taurua PhD ka haere ki tāna taha kia ako i ētahi tūāhua a Te Wāo Nui a Tāne. Koirā tētahi wānanga oranga ngākau, oranga wairua na te mea e hāngai ana ki tō tātou ao Māori. Paī noa ēhia ki haere ngātahi ngā ao e rua, I suppose, but ko te raru ko te ao Pākehā e tāmia ngā tohu ngā whakaaro tururu Māori, te ihomatua Māori. Ā he uaua ki te kimi ngā tāngata e mātou ana ki te ao Māori me kī. (Mātauranga Taiao student)

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4 I make a distinction here between “Mātauranga Taiao” and “mātauranga taiao”. “Mātauranga Taiao” is the name of the initiative and “mātauranga taiao” is a body of knowledge about the environment (human and nonhuman) that has been/is being drawn—largely, but not exclusively—from Māori epistemologies.
During the noho students were set tasks that encouraged them to draw upon the knowledge they had as individuals about their contexts. This is a good starting point but given the scope of Mātauranga Taiao there is a great deal for any one person to learn, again reinforcing the importance of drawing on the local resources. In one kura visited, for example, wānanga were being organised so that kaiako were exposed to knowledge that they then used to develop and implement their classroom plans and activities.

There appear to be at least two reasons for focusing on the co-construction of knowledge in the Mātauranga Taiao programme. Firstly, and most obviously, there is very little literature that makes explicit the connection between Māori knowledge and traditions and the environment, let alone in the context of education—Māori knowledge in this area is implicit. A kaupapa that focuses on te taiao needs to be able to draw on the knowledge and indigenous theories of sustainability from within Māori worldviews, traditions and korero. Secondly, the programme co-ordinators wanted to encourage Mātauranga Taiao students to draw upon the puna mātauranga that they have access to in their own communities; that is, “localised knowledge”.

This is a similar approach to other professional development programmes in Māori-medium education, for example in Ngā Toi and in Ngā Taumata (Cooper, Bull & Campbell, 2006). These evaluations, and others, highlight the advantage of being less prescriptive and being open to drawing on the knowledge in each community and in the process validating this knowledge. If the knowledge to be included is highly prescribed there is no space left open for further knowledge to be brought to the centre of the educational process and so it remains marginalised. The approach used in the Mātauranga Taiao programme was enabling and so in its own way is contributing to the maintenance of local traditions.

The Mātauranga Taiao professional development programme did not just focus on building environmental/sustainability knowledge of Mātauranga Taiao but also on pedagogy designed to actively engage learners, both cognitively and practically. The Mātauranga Taiao students particularly enjoyed the experiential and co-operative strategies that were part of the professional training in the noho. The use of such strategies in the classroom, however, posed a number of challenges. One student I interviewed attempted to practise this type of pedagogy in the classroom but talked about Mātauranga Taiao students to draw upon the puna mātauranga that they have access to in their own communities; that is, “localised knowledge”.

It was also mentioned by this student that this was a practice that was being adapted from English-medium schools:

Ehara tenei i te whakahē, … Engari ki ahau nei ko tētahi mea me kia i āhau tohunga mai e [the co-ordinators] i te ao Pākehā ko tētahi o ngā huarahi whakaako. Nā ko tētahi mea nui e mōhio ana au i roto i te ao Pākehā, me te pai hoki ki ahau kia noho te mana ki ngā tamariki. Me noho rātou ki te pokapū o ngā mea katoa ki roto i ngā kaupapa taiao. (Mātauranga Taiao student)

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5 For a discussion on concepts of progress see my paper and others in NZCER’s conference proceedings, Making progress—Measuring progress (Morton, 2008).
While what constitutes environmental/sustainability education is being reframed in Māori-medium education through the Mātauranga Taiao programme, further thinking and research are perhaps needed into what might constitute the most effective pedagogy in the context of Māori-medium education.

2. Building support networks

The co-ordinators I spoke to said that they focused on developing Mātauranga Taiao networks between students and by sharing contacts. This was seen as a way of supporting each other’s programmes in the different kura, given that the number of people working in this area and with skills in this area is small. This outcome was also commented on by the students I interviewed for this study.

Students reported that their involvement in the Mātauranga Taiao programme led to them developing new networks to support their learning and their own students’ learning in the area. In one of the sites I visited the student reported that the programme had led to her feeling empowered to approach people with different expertise to assist in the delivery of the taiao kaupapa in their kura. For example, her kura made a field trip to Auckland to visit well-respected scholars in the area of marine and biological sciences. She suggested that the Mātauranga Taiao programme had opened the doorways to develop these types of networks:

Kia rata mai rātou ki te ao mātauranga tonu … kia noho rātou hei kaitiaki mō te ihi ā tōna wā. Kātahi ka hoki mai mātou ka here ō mātou tau rima me ētahi o ngā kaiopē o te hau kāinga i whakaritea Tākuta Mere Roberts, mā runga i tana inoi ki a ia he whakarite i tētahi kaupapa i Akarana. Nā reira i haere mātou ki reira mō ngā rā e whā ko tōna kaupapa i reira, me ngā kaikōrero ko Dr O’Shea e whakamōhio atu ki ā mātou tamariki āna mahi e pā ana ki ngā wheke nunui rawa. Koirā he tangata rongonui ia ki tērā mahi, rongonui ki te ao whānui. (Mātauranga Taiao student)

The networks that students found beneficial were not just networks with respected scholars, academics and practitioners in the area of environmental sustainability, but also with each other. For example, a cluster of kura, who had developed relationships as a result of their involvement in Mātauranga Taiao, from Waiairiki (Rotorua), Mataatua (Bay of Plenty) and Te Tairawhiti (the East Coast) arranged their own wānanga bringing well-respected and knowledgeable elders to share their knowledge around this kaupapa. This particular wānanga received coverage on Māori TV.

Finally, but not any less significantly, the networks being talked about here also refer to the communities within which the kura are located. It is assumed that schools have ongoing engagement and relationships with their communities. One of the kura I talked to had developed a relationship with the local iwi tribal council to further the mātauranga taiao kaupapa in the wider community. This in a sense became a “real-life” project, and the learning was meaningful, “real” and not contrived (see Gilbert, 2005).

3. Mātauranga Māori, Mātauranga Taiao and the Marautanga o Aotearoa

This particular programme creates an intersection of at least three discursive frameworks and systems of knowledges which are connected to one degree or another, though they are also quite distinct: Mātauranga Taiao, Marautanga o Aotearoa (the New Zealand Curriculum in te reo Māori) and mātauranga Māori (mātauranga Māori being here Māori traditions and the understandings of the world that have emerged from these traditions).

The co-ordinators reported that Mātauranga Taiao became a vehicle to deliver learning outcomes from the other curriculum areas in Marautanga o Aotearoa. One of the guest speakers at the noho was brought in specifically to show students how to make links with other curriculum areas whilst also maintaining the focus on mātauranga taiao:
We brought in [name of educator] to explore … linking it [Mātauranga Taiao] to different curriculum areas … like hauora … (Mātauranga Taiao co-ordinator)

Importantly, however, in the view of the co-ordinator, students saw ways of making the marautanga fit Mātauranga Taiao, not the other way around:

everything’s [in the curriculum] incorporated into a Mātauranga Taiao kaupapa … and now having the opportunity with Mātauranga Taiao, clearly it’s saying, … we don’t have to operate in those boxes. We can meet those, we can meet our literacy, ICT, numeracy needs for our kids through this … (Co-ordinator)

The next dialogue illustrates how the kaupapa (themes/learning areas) are chosen that link to the curriculum but are driven by the iwi and kura:

Interviewer: Ka pēhea te whakahere i ngā kaupapa a te kura, ngā mea whai pānga ki te marautanga, ko ngā mea matua ko ngā kaupapa, ko ngā wahanga rānei o te marautanga?

MT student: Ngā kaupapa.

Interviewer: Ngā kaupapa.

MT student: … ka mahi ngā kaupapa ki te marau … Ka hono atu ki te marautanga. Āe … koirā ko te iwi o [name of iwi] kei te whiriwhiri tonu me pēhea te whakatakoto pātuhi me kī, te rangahau hoki tō rātou maramatakapa ake … e ai ki ngā pakeke, tō rātou nā curriculum o [name of iwi] … i haere ahu ki te āwhina, mahi tahi mātou me te rūnanga tonu, ko te [iwi tribal council]. Ki te kimi huarahi kia whai huruhuru rātou te tono tangata kia āta noho te rangahau kua whakatakoto taua marau mō te kura.

Both the Mātauranga Taiao programme and the Marautanga o Aotearoa (the New Zealand Curriculum in te reo Māori) are, in theory, supposed to be informed by mātauranga Māori. However, the extent to which this actually has occurred is still an open question.6 Mātauranga Taiao, having more recent origins and being inherently more holistic than the other learning areas in the Marautanga o Aotearoa, was seen to have greater potential to incorporate more mātauranga Māori in a way that maintains the integrity of mātauranga Māori. For example, the Mātauranga Taiao national co-ordinator explained that students reported that they were able to centre Māori knowledge in the learning process related to mātauranga taiao:

… what we saw [was] empowerment, that is an integrated approach to the curriculum … it’s probably about the most powerful inroad they have at the moment to advocate for mātauranga Māori in the curriculum. (Mātauranga Taiao co-ordinator)

Interestingly, there are other ideas that I could explicate from this statement. The suggestion that it is important to advocate for mātauranga Māori suggests that these spaces do not already exist within the curriculum, even within kura kaupapa Māori. If there is a view that we need to advocate for mātauranga Māori this would suggest that its position is tenuous, well certainly more tenuous than other knowledge(s) that are centred and privileged in the curriculum. Mātauranga Taiao is thus contributing to a re-centring of mātauranga Māori in kura curriculum.

6 Critiques of the Māori-medium curriculum have argued that earlier iterations to incorporate Māori knowledge into the curriculum have been problematic—one part of the criticism being that mātauranga Māori was just an “add on” and was really only on the periphery of what was seen as “real” knowledge (see Barker, 1999; McKinley & Waiti 1995). Initial investigations into the new Marautanga o Aotearoa offer little hope that this situation has substantially changed.
4. Kura kaupapa Māori, kura motuhake, kura-a-iwi, kura taiao?

In addition to co-constructing mātauranga taiao through accessing local knowledge and developing specific learning programmes with links to the Marautanga o Aotearoa, interviewees also spoke about how their involvement in the Mātauranga Taiao programme had led to changes within their kura. For example, in the kura of one of the Mātauranga Taiao students, all of their learning programmes were now based around the taiao themes. The kura is small and in a rural setting and was able to go on a number of school trips that focused on the taiao kaupapa. This Mātauranga Taiao student, who is also the tumuaki, mentioned that the kura wanted to become a kura taiao—an Enviroschool. The other kura I visited was already an Enviroschool. They both felt that they had become “inspired” to carry on the kaupapa whether or not they would receive ongoing funding or time to focus on this kaupapa directly through professional development.

A feature of our discussions with the co-ordinators and students of Mātauranga Taiao was the possible emergence of a new type of kura. Since the establishment of kura kaupapa Māori (kura that according to the official legislation subscribe to the Te Aho Matua philosophical and pedagogical statement) during the late 1980s, other kura have begun to emerge. There has been the development of “kura-a-iwi”; that is, kura that centre and privilege the traditions, language and beliefs of the tribe within whose boundaries the kura is located and draws the majority of its students from. In the last two years these kura have established a national representative council. The national co-ordinator felt that there is the possibility of another new type of kura emerging out of this professional development programme and exposure to issues vis-à-vis the environment. At least two students of the programme have expressed a desire to establish kura with a taiao focus—a kura taiao. Students we talked about had said that they would like to reposition the focus of the kura they worked in, or establish new kura that had a taiao focus. Students also felt that the two kaupapa were not incompatible and that in fact they saw this as a way of meeting some of the original goals of kura kaupapa Māori.

5. Development of Mātauranga Taiao outcomes for Mātauranga Taiao students, kura and young kura students

The national co-ordinator reported that the Mātauranga Taiao students were able to “describe not only shifts for themselves, but for their kids, their kura [and] for their community”. Students were asked to make a presentation at the last noho to demonstrate the types of shifts that had occurred for them as students, their students and their kura. Mātauranga Taiao students were asked to report specifically on:

1. promoting the introduction of Mātauranga Taiao to enrol, and engage individual teachers and syndicates leading to whole-school implementation
2. planning, implementing and assessing effective school/classroom programmes to increase student learning outcomes in Mātauranga Taiao
3. developing material, i.e., units of work based on Mātauranga Taiao, to be presented at national hui and on Mātauranga Taiao online.

Both of the students of Mātauranga Taiao whom I interviewed had started on a pathway of implementing and incorporating Mātauranga Taiao in their learning programmes. The different contexts in which they worked influenced the implementation of the programme in their respective kura. One of the kura was small and therefore it was easier to transform the school programme to focus on mātauranga taiao, whilst at the same time meeting other curriculum outcomes. This student had already presented the Mātauranga Taiao kaupapa to the kura whānau and board of trustees (BoT) who supported the implementation of Mātauranga Taiao into the kura:
It was relatively easy then, because of the small size of the kura, to adjust the programme to centre Mātauranga Taiao across the whole of the kura.

In the second kura, however, the Mātauranga Taiao student was tasked with implementing the programme across the kura. This meant developing a school-wide programme in consultation with the kaiako and tumuaki and then providing resources for the kaiako to use in the implementation of Mātauranga Taiao:

Nō reira ko mātou katoa ka whakaako i te mea kotahi i te wā kotahi. Nā, ki ahau nei koinā tētahi o ngā mea nui. Kia whakahetaia kia whakahurua tētahi kaupapa tāiao ko tāku he rapu i ngā rauemi hei āwhina i ngā kaiako. (Mātauranga Taiao student)

The task was made easier in the 2008 year because the student was able to access teacher release day funds through Mātauranga Taiao to free himself to prepare the programme and gather resources:

… i kite atu au e kore rawa e taea e au, mēnā e kore au e whakawāteaanga, he nui rawa nō ngā mahi … Nā koirā ahau i tino waimarie ai i roto ahau i te kirimana mātauranga a Hiria mā, i te mea he moni ā rātou me ngā rā whakawātea kaiako. Nā ka tono ahau ki a Hiria, i inoi ahau ki a Hiria kia hōmai [putea, hei] whakawātea. (Mātauranga Taiao student)

The classroom-based programmes implemented by the students of the Mātauranga Taiao programme illustrated many of the ideas highlighted in the noho. These included: communicating the key ideas with the BoT and kura community; setting projects within the local environment; drawing on local experts; and providing rich tasks that required the young kura students to be actively engaged in learning about the environment. The units of work reported by the Mātauranga Taiao students covered topics such as: recycling; gardening activities, including research into kumara as well as growing and harvesting; learning about the local vegetation and Māori medicinal uses; and investigations into energy use and water quality/health.

The way these programmes were implemented varied. In one kura, Te Taiao was the central organising framework for thematic studies that incorporated the other curriculum areas of: hauora; te reo; hangarau; nga toi; and putaiao. Young kura students from Years 1–7 undertook a range of activities such as: discussing whakataukī about matariki; visiting a local forest area with a kaumātua and learning about medicinal qualities; making rope from flax, learning how to strip, rub and bind it; and investigating establishing school gardens. The latter involved a visit to the local government gardens to determine the kind of garden the students wanted for their kura and later the students drew a design of their optimal school garden. On reflection the teacher commented that it was rewarding but challenging to implement integrated curriculum programmes, and that it takes much more time to work in this way than initially anticipated. In another kura, a study of water included investigating: waiora; the importance of fresh water both locally and internationally; and water testing techniques. The study included testing the local water supply. The recycling work of another Mātauranga Taiao student also showed evidence of the ideas conveyed through the programme. In this case the young kura students involved the BoT and their whānau in their project as well as writing to the local council to advocate for recycling bins.

In these early days of the programme there was a strong sense from the final programme evaluations that students found working within a Mātauranga Taiao kaupapa to be very rewarding for them and their young kura students. There was the feeling that the approach made sense and that it “is an integral part of school life: you live it; the school community lives it; and it becomes an integral part of school curriculum as well”. One participant thought that the programme had
“empowered me with the knowledge that I am doing the right things with my children and the school. Grounding them with the foundations e pā ana ki tā tātau ao Māori.” At the same time it was acknowledged that there was much more to learn, and that the support provided by the co-ordinators was critical. While the evidence provided by the students documents the activities undertaken by their own students, the actual impact on learning is beyond the scope of this evaluation. Just as in the other EfS programmes, more research and thinking are needed about what might be useful measures of student progress in terms of learning what is valued within mātauranga taiao kaupapa.
7. **Wider connections with EfS: How does Mātauranga Taiao relate to overarching EfS goals and other EfS programmes?**

**Relationship between these outcomes and overarching EfS goals**

The Mātauranga Taiao programme was guided by the overarching goals of Education for Sustainability. The primary focus, however, appeared to be on the students learning within the context of the aims of the Mātauranga Taiao programme and then on making connections to the overarching Education for Sustainability goals.

There was general consensus amongst the co-ordinators that there was much in common between Mātauranga Taiao, the EfS overarching goals, and the national and international literature about environmental/sustainability education. The national co-ordinator felt that the goals of Mātauranga Taiao and EfS were not too dissimilar and referred back to the whakataukī which encapsulated the vision of EfS, “Oranga tangata, oranga taiao” (“Wellbeing of people and the environment”). The co-ordinators had, of course, been involved for at least three years prior to the establishment of Mātauranga Taiao in national discussions about environmental/sustainability education, and were therefore very familiar with the national and international literature and about environmental issues in general.

However, the main focus for this programme was on building mātauranga taiao and practices which assist in meeting the overall aims of Mātauranga Taiao. It needs to be remembered that mātauranga taiao, although drawing from a large body of knowledge and practices from Māori epistemologies, is very much a new initiative within education, and it will take time to build the knowledge and best practices.

There was a tension raised around how Māori knowledge was incorporated into discussions and documentation around the goals and objectives of EfS, which is discussed in a little more detail in the next chapter.

**Relationship with other EfS programmes**

There was some interaction with the other programmes in the area of Education for Sustainability, and for the most part this was respectful and mutually beneficial. These interactions, however, were limited, perhaps because of time pressures rather than any other potential obstacle.

There was an active relationship with Te Mauri Tau, an organisation that partners with Enviroschools, and that provides environmental/sustainability education support and develops teaching resources in te reo Māori. One of the Mātauranga Taiao co-ordinators was involved in the development of Te Kete Taiao, a resource kit for Māori educators developed by Te Mauri Tau, and both regional co-ordinators attended a professional development hui for its implementation. All were enthusiastic and complimentary about this particular resource, seeing it as valuable for Māori-medium and environmental/sustainability education.

Mātauranga Taiao interviewees suggested that they and Te Mauri Tau see themselves as offering something different, complementing each other’s work rather than competing. Te Mauri Tau delivers their programme directly into kura that seek their support with regard to Māori perspectives and knowledge around sustainability. Mātauranga Taiao specifically trains kaiako and Resource Teachers of Māori to be builders of knowledge and facilitators of Mātauranga Taiao in kura throughout the country by drawing upon local knowledge. This is not to say that Te Mauri Tau doesn’t
draw on local knowledge, however the difference between the two could be put, in my view, as one placing an emphasis on personnel and resources to deliver knowledge and the other, in its development phase, putting more emphasis on building knowledge.
8. Future directions: What issues and opportunities emerged as the programme develops that might provide guidance for the future?

In this chapter I outline three challenges that emerged during the evaluation which deserve further consideration for the ongoing work of Mātauranga Taiao and potentially other professional development programmes. Then I offer a range of suggestions for the future, based on our overall analysis and knowledge of Māori-medium education settings.

Challenges

Epistemological issues

EfS, including all three main components of the EfS initiatives, draw from at least two quite different epistemologies—specifically Māori and Western epistemologies. The inclusion of Māori knowledge and traditions has been an educational practice in the New Zealand context that dates back to the early 20th century.

During the noho, people with expertise in a range of areas were brought in to share their knowledge and expertise with the Mātauranga Taiao students. The students mentioned that they felt privileged to meet and hear these people (for example, the speakers were the second most popular aspect of the programme content the students reported in the programme evaluation). However, while their knowledge was respected sometimes students found it hard to make the connections with this knowledge and expertise, and mātauranga taiao as they understood it from a Māori point of view.

The following quote from one of students illustrates the difficulty in trying to develop a Māori view of te taiao when they were exposed to experts of Pākehā knowledge:

Koirā tētahi o ngā wero i whakatakoto au ki mua i te aroaro o ngā kaiwhakahaere o te Mātauranga Taiao.
Nā te mea ko te nuinga o ā mātou ka mahi ki roto i te mōtora e hangai ana ki nga tino [mea] o te ao Pākehā tonu. I mea atu, kei hea te whakaaro tūturu Māori? You know?

This is a tension that I highlighted in the interim report. I cited Nakata (2007) who argues that indigenous and nonindigenous knowledge systems are “incommensurable”, that is, they are so different that they cannot, and do not “talk” to each other. He argues that when indigenous knowledges are “added” into nonindigenous curriculums—as in the case of EfS—they are entering into “contested knowledge spaces” at the “cultural interface” and inevitably indigenous knowledges are assessed in terms of their validity and usefulness against Western standards. Ultimately it has the effect of reconfiguring Māori knowledge and concepts to conform to Western standards, and it positions indigenous knowledges as inferior to Western knowledges.

There are perhaps a number of things that we could say and questions that we could ask about this. When students are confronted with different knowledge systems, they have at least two choices. They can completely disregard the new knowledge, or they can place it alongside what they already know, and how they already know, and try to find a place for this new knowledge. In the process their previously established knowledge will change as will the knowledge they have been exposed to. In this Mātauranga Taiao programme students’ epistemologies were continuously faced with difference, and challenged. It makes the conceptual and intellectual load very high, as the students seek ways to live...
with these tensions and as they consider what they are wanting their own students to learn in their kura-based mātauranga taiao programmes.

Pedagogical issues

It is not only content knowledge that offers a challenge within the context of Mātauranga Taiao, so does the nature of the pedagogical content knowledge. One of the aims of the programme was to build knowledge of effective pedagogy and a number of students commented on the value of learning more about experiential, co-operative and inquiry learning. The need to attend to pedagogical content knowledge is not unexpected given the compelling evidence in recent years about what constitutes quality teaching (see, for example, Alton-Lee, 2003) and so the ongoing need to re-examine practices. However, given the demands of teaching in this more interactive way the opportunity for continued conversations and sharing is essential if it is to be sustained. There is an additional conversation needed in the context of Māori-medium education. As suggested earlier, the teaching approaches utilised need to be consistent with Mātauranga Taiao kaupapa, which is similar but not the same as EfS, and so there is a need to “define our own” version of appropriate pedagogy, as has begun with the content of the programme. There is yet another demand on the kaiako working in Māori-medium contexts, this time in terms of continuing to build the language required in terms of the content being investigated and in relation to the young kura students’ own language development. If you add these pedagogical challenges to the epistemological ones the demands of Mātauranga Taiao on participants is very high indeed.

Tensions in the positioning of mātauranga taiao

Related to the potential for epistemic tensions within the Mātauranga Taiao initiative, several interviewees within and beyond programme staff raised concerns about the way that mātauranga taiao was represented and delivered in English-medium schools and professional development programmes. While, as we saw in Chapter 3, the development of Mātauranga Taiao was hoped to address issues with regards to EfS support in Māori-medium schools, programme staff and others are often called upon to provide Māori knowledge for school-based EfS resources, policies and professional development. However, this is often experienced as difficult territory or is in a similar vein to how Smith (1999) describes the research process for indigenous scholars in intercultural situations, as “tricky ground”. Ultimately there is a concern that some EfS learning experiences will have negative impacts on those Māori children in mainstream education. This can occur if Māori knowledge is presented in ways which are foreign to them, from a person in a position of power, as there then is the potential for Māori students to question their own experiences and understandings (see Penetito, 2004). Although they are not contractually responsible for English-medium education, Mātauranga Taiao staff clearly see this as a concern and that there is a need to address this in a more substantive way.

Suggestions for the future

- Mātauranga Taiao is obviously an emerging area of work. I stated in the interim report that I think the potential contribution of the development of Mātauranga Taiao to, not just the Māori community, but nationally, is important. It is a part of New Zealand’s unique contribution to Education for Sustainability internationally. The programme requires continued support to enable it to fully realise its goals. We believe that this will take time.

- Mātauranga Taiao is ambitious and complex. It is aiming to build participants’ environmental/sustainability knowledge within a Mātauranga Taiao kaupapa as well as providing access to research and pedagogy about quality teaching practices. Participants are expected to not only plan and implement programmes within their own classrooms but also to act as facilitators within their kura and schools and in their nearby community. These are all important goals and while some participants are working across kura and schools, more time is needed for most participants to consolidate their own knowledge and experience before taking a lead role as facilitators themselves.
• Mātauranga Taiao needs to be staffed adequately in order to meet its not insignificant goals. The retirement of one of the regional co-ordinators during the course of the programme and one at the completion of the programme is significant and unfortunate. There are few people who have the expertise in this area and a strategy needs to be developed to ensure that the programme is staffed adequately throughout the course of the programme and to enable the building of collective knowledge in this important area of education. In this initial phase of the programme the follow-up and support visits to students were not as comprehensive as they could have been and needed to be. This limited the opportunity for supporting the ongoing work of the participants and for reinforcing the collective work within the programme.

• More thought and consideration needs to be given to epistemological tensions. If we are able to address these tensions effectively we may realise a fuller, richer contribution of mātauranga Māori to Mātauranga Taiao, and EfS generally. As it stands it is unlikely to happen in either the Mātauranga Taiao programme or the English-medium EfS programmes. One way of doing this is to make the “cultural interface” something that is spoken about and discussed and not reconciled internally within each of the programmes.

Conclusion

One of the main themes that has become apparent in this evaluation of the Mātauranga Taiao professional development programme is that it is still very much negotiating its own space under the banner of Education for Sustainability in a way that brings together and/or incorporates mātauranga Māori and Te Marautanga o Aotearoa. The programme co-ordinators have been very careful not to impose a particular understanding of mātauranga taiao given it must intersect with not only mātauranga Māori, Te Marautanga o Aotearoa and EfS generally, but also the knowledge and traditions of the communities in which the programme is being implemented. A key reason for this has been the need to ensure that the knowledge and programme is contextually sensitive and relevant. Further, there is a strong belief—and this is supported by at least one international scholar in the area—that if the traditions and kōrero of the local people are strong, then so too will be the environment. The programme co-ordinators have been keen to allow specific goals and outcomes to emerge from their contexts. That said, there are other types of outcomes that Mātauranga Taiao appears to be achieving. There is greater awareness of the taiao and a greater willingness to centre learning programmes on developing care for, and understanding of, the environment. Mātauranga Taiao students have also been provided with tools to access, build and construct mātauranga taiao with their kura and their local contexts. However, the journey has just begun. If Mātauranga Taiao itself is to be sustainable the potential network established through this programme needs further nourishment. This will enable those involved to continue to learn and to share their growing knowledge with each other and the wider community working in the area of Māori-medium education.
9. References


