Embedding Mātauranga Māori in Computing Courses: A Case Study

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ABSTRACT

This paper discusses how to embed mātauranga Māori in computing courses to increase the awareness of ākonga (students) regarding Māori beliefs, language and practices. The study has been driven by the low scoring of the statement regarding embedding Māori beliefs, language and practices in the course survey conducted by Unitec for the School of Computing, Electrical and Applied Technology.

The paper considers different methods provided by Unitec to embed mātauranga Māori in teaching and learning, such Te Noho Kotahitanga, I See Me initiatives, and others. The paper then looks at how to apply these methods in computing through a case study of one of the courses in the New Zealand Diploma in Information Systems (Level 5) (NZDIS). The case study discusses the approaches that are currently used, then it moves to how these approaches can be improved, as well as applying new ones. The aim is to apply these proposed approaches through Semester 2 2023, to get the results in the course survey by the end of that semester. The expectation is that the applied approaches will increase the awareness of ākonga of how they feel that Māori beliefs, language and practices are embedded throughout their computing courses. The proposed approaches here can be considered as a reference to embed mātauranga Māori in other IT courses.

KEYWORDS

Mātauranga Māori, Māori beliefs and practices, computing courses

INTRODUCTION

Unitec takes its obligations under Te Tiriti o Waitangi seriously. In 2001 it developed a partnership document called Te Noho Kotahitanga (Unitec | Te Pūkenga, 2023c), which itemises shared values and encourages all kaimahi (staff) to follow these both with fellow kaimahi and with ākonga (students). It aims to see more mātauranga Māori embedded into courses and teaching and learning. Kaiako (teachers) on the New Zealand Diploma in Information Systems (Level 5) (NZDIS) were therefore concerned when, in the institutional student course survey, ākonga rated the statement "I felt that Māori beliefs, language and practices were embedded throughout my course" the lowest among other statements. In this paper, we will look at methods that are provided by Unitec to assist kaiako to understand how Unitec embeds mātauranga Māori in different aspects of teaching and learning. These include Te Noho Kotahitanga, kaihautū (Māori Academic Advisor), I See Me initiatives, and others. We will then consider one course in the NZDIS, namely, HTCS5607 IS Application Project, and look at what we are doing and how that can be improved to embed more mātauranga Māori. Our aim is to implement the improvements in this course in Semester 2 2023 and compare the rating. If the rating has improved, then the proposed work on the HTCS5607 IS Application Project course can be used as a reference to embed mātauranga Māori in other IT courses.

Unitec conducts a survey of each course each semester. In the Course Content section of the survey, there are seven statements and ākonga need to rate each as "Don't know" or on a scale of 1 (poor) to 10 (excellent). For the NZDIS programme in 2022, the average rating for the Course Content section was 7.8 out of 10. The lowest rating was 6.5 for the statement "I felt that Māori beliefs, language and practices were embedded throughout my course" (Unitec | Te Pūkenga, 2023a). A total of 35% of the responders chose "Don't know". This compares with the Unitec average of 7.6 out of 10 for this statement. For the HTCS5607 IS Application Project course, the referred statement scored 7.1

out of 10, while the average was 8.2, and 36% of the responders chose "Don't know". These statistics indicate that many of our ākonga are not aware of how Māori beliefs, language and practices are embedded in teaching and learning for NZDIS courses.

UNITEC METHODS TO EMBED MĀTAURANGA MĀORI

It is a challenge to apply Māori language in IT courses in general (Te Momo, 2022). However, Unitec has a strong desire to embed mātauranga Māori in teaching and learning, and to provide a culturally safe learning environment for all ākonga. Unitec has introduced many methods in support of this desire, which are discussed below.

Te Noho Kotahitanga (TNK) Framework

At Unitec, the teaching and learning principles are guided by Te Noho Kotahitanga framework (Unitec New Zealand, 2020). Through this framework, Unitec expresses its commitment to te Tiriti o Waitangi (Unitec | Te Pūkenga, 2023d). This framework consists of five values, which are as follows:

- **Rangatiratanga:** The authority and responsibility for all teaching and learning related to Māori dimensions of knowledge lie with Māori.
- **Wakaritenga:** Each stakeholder has a legitimate right to be here, to speak freely in their language and put its resources into use that will benefit all.
- **Kaitiakitanga:** Unitec takes responsibility as a critical guardian of knowledge.
- **Mahi Kotahitanga:** The spirit of generosity and co-operation will guide all the actions.
- **Ngākau Māhaki:** The heritage and customs, current needs and future aspirations of each stakeholder are valued and respected.

All kaimahi are expected to incorporate these values into their roles. Schools at Unitec have the assistance of a kaihautū, assigned to them to integrate these values into programme philosophy, content, teaching, learning and assessment.

I See Me

I See Me are Unitec's initiatives (Unitec | Te Pūkenga, 2023b) to make all ākonga feel welcome, supported and part of the Unitec whānau. The focus areas of these initiatives are in line with Te Noho Kotahitanga to improve Māori success rate.

Focus Area One places emphasis on the concept of whakawhanaungatanga – the process of establishing meaningful relationships. Ākonga are invited to attend pōwhiri when they are new to Unitec and when they return for second semester. Whānau evenings and tuākana–tēina mentoring support (Peer Assisted Study Session – PASS) are other important strategies suggested under this initiative.

Focus Area Three has two aspects. The first is embedding elements of Māori content into the courses so that ākonga see their culture reflected in the curriculum. Courses may include Māori equivalent words in the course descriptors and in the teaching materials. A glossary of digital technology terms and their equivalent in te reo Māori is provided by Maclennan (2023), while a glossary of general Māori words can be found in *Te Ara* (2023). Another way to embed Māori content is through introducing topics that are directly related to Māori culture and beliefs. For example, Māori data sovereignty, application of te Tiriti o Waitangi in the IT sector, Code of Ethics and professional practices, legal and privacy requirements in IT projects, and others.

The second aspect of Focus Area Three concerns the use of some teaching and learning practices that are culturally familiar to Māori ākonga. For example, mihi ki te ākonga (greetings), pronouncing names correctly, using Māori concepts in the classroom, and noho marae as a learning tool (using marae for educational purpose); teaching

methods that appeal to different learning styles; keeping track of ākonga learning progress (Tomoana, 2012). In addition, ākonga may be exposed directly to many current, real-world Māori case studies through the assessments and class activities. They also have the option to submit their assessment work in te reo Māori, and their work will be evaluated in collaboration with kaihautū and Unitec's Maia Centre.

Focus Area Four is about increasing staff capability in embedding mātauranga Māori into their day-to-day work through internal professional development (digital credentials). Living Te Noho Kotahitanga is a digital credential that aims to support kaimahi in developing an understanding of the Unitec partnership document of Te Noho Kotahitanga. It also supports kaimahi with integrating the values into their day-to-day work (Unitec | Te Pūkenga, 2023e). Another digital credential is Te Tīpare: Embedding Mātauranga Māori, which aims to support kaimahi in embedding mātauranga Māori in their role. Kaimahi can use Te Tīpare framework to critically reflect on their professional practice to ensure the success of ākonga. They can also impact and influence the success and holistic wellbeing of all Unitec ākonga, especially Māori, through the framework (Unitec | Te Pūkenga, 2023e).

Te Reo Māori me ngā Tikanga

Many resources are available to learn about Māori culture and practices. *Te Ara: The Encyclopedia of New Zealand* is an online government resource that briefly describes Māori culture. Many academic providers, including Unitec, offer free classes to learn Māori language and culture (Unitec | Te Pūkenga, 2023c), from beginner to advanced levels. Libraries, whether they are council owned or belong to education providers, offer many resources and guidance about mātauranga Māori.

CASE STUDY – IS APPLICATION PROJECT COURSE

The HTCS5607 IS Application Project is designed to provide ākonga with the opportunity to apply their skills and knowledge in information systems development to an integrated project set within an unfamiliar context. This course is worth 30 of 120 credits in the NZDIS and enables ākonga to apply knowledge and skills gained in the previous six courses. Ākonga are assigned case studies of companies, some of which have Māori backgrounds. The case studies consist of a set of detailed user requirements, and ākonga are informed that the requirements are the product of the information-gathering phase (the process of identifying and defining what a software system needs to do to meet the needs of its users) of the system-development lifecycle. They are required to collaborate in groups (of usually three to four), which are allocated by the kaiako, to complete the projects. Due to the length of the project being restricted to eight weeks, the waterfall model is chosen as the system-development lifecycle to follow. The structure of the course is: project initiation and planning (Week 1), analysis of requirements (Week 2), design (Weeks 3 and 4), coding and testing (Weeks 5 and 6), technical report and training materials (Week 7), and demonstration and project close (Week 8).

Current Approach to Embedding Mātauranga Māori

We are already applying Te Noho Kotahitanga values in the course. The internal professional development (i.e., digital credential) on Living Te Noho Kotahitanga has helped kaiako to understand the values and how to embed them in teaching and learning. Ongoing support is provided by kaihautū to further integrate the values throughout the lifespan of the project. We have incorporated strategies such as role playing, case studies and group reflections (Smith, 2015). In each project, ākonga assume different characters that reflect real-life roles and responsibilities, which is in line with the value of Rangatiratanga. These roles include the project manager, business analyst, quality-assurance manager, developer and tester, with the kaiako acting as project sponsors. Kaiako are actively involved in providing project-management guidance and technical support to the ākonga, guiding them in building a high-quality product from the ground up. This is an example of how the value of Kaitiakitanga is applied. Ākonga in the groups are from diverse backgrounds, so in order to establish a sense of Wakaritenga (one of Te Noho Kotahitanga values) in the classroom, we have implemented clear rules that apply to all ākonga, such as attending weekly meetings, no use of inappropriate language and no absence without a legitimate reason. Having the rules also helps

in ensuring that ākonga demonstrate the value of Ngākau Māhaki towards each other. The project gives ākonga an opportunity to learn from each other's perspectives and apply Mahi Kotahitanga in their work, towards achieving the final goal.

The concept of extended whānau is used throughout the project lifecycle. The project is structured and delivered in such a way that each ākonga is supported by a whānau consisting of fellow ākonga, kaiako, academic programme manager and guest speakers (Te Momo, 2022). For example, in Week 1 all groups focus on project planning and initiation. This approach can help detect issues early in the project, which can be resolved with whānau support. We organise a Whānau Day at the end of project. We invite students' families, friends and others to celebrate the ākonga and the project's completion with whakawhanaungatanga and shared kai.

The Future Approach in Embedding Mātauranga Māori

In future we would like to continue the practices mentioned above and emphasise them to support ākonga. We will meet each group individually once a week, and during the meeting we will get each ākonga to pick a Te Noho Kotahitanga value and ask them to talk about how it is working in their group. By using role play, we want to prepare ākonga for real-world scenarios. The group work with allocated roles gives them a safe place to practise Te Noho Kotahitanga values. This strategy will help them in developing better awareness of the application of the values in IT projects.

We will invite the school kaihautū to speak to our project ākonga in the first week of the course. We would like kaihautū to speak about mātauranga Māori and ways to implement the knowledge into their project. This session and the group-forming session can he held in the marae, providing a formal or informal atmosphere, as well as providing the right environment for Māori culture. We will also invite Māori experts to talk about Māori data sovereignty and te Tiriti o Waitangi.

We will use the tuakana–teina model (with PASS leaders as tuākana) as additional support to manage the progress of the projects. PASS leaders are ākonga who have been through the same process in an earlier semester. They can attend the class once a week and spend 15 to 20 minutes with each group, sharing their experiences and providing help and guidance to the ākonga in completing the project.

CONCLUSION

The paper discusses different methods introduced by Unitec to embed mātauranga Māori in teaching and learning, such as Te Noho Kotahitanga values and I See Me initiatives. In addition, we have also looked at some reo Māori me ngā tikanga (Māori language and culture) to build the capability of kaimahi and ākonga in Māori culture and practices.

A case study of the Level 5 IS Application Project is considered to show the current approaches of embedding mātauranga Māori. These approaches have been evaluated by ākonga through Unitec students' course surveys. The statement related to mātauranga Māori was rated the lowest among other statements. The case study also discusses the future approaches for how to improve the awareness of ākonga regarding embedded mātauranga Māori in their IT courses. Some of these future approaches are: putting more emphasis on Te Noho Kotahitanga values; inviting kaihautū and Māori experts to address the class; and to use tuakana–teina relationships during the class. The plan is to implement these approaches in Semester 2 2023, and compare the course survey results with previous ones by the end of the semester.

If the proposed approaches are successful in improving the awareness of ākonga regarding Māori beliefs, language and practices, then the work here will be used as a reference for other IT courses in the future.

ACKNOWLEDGMENT

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