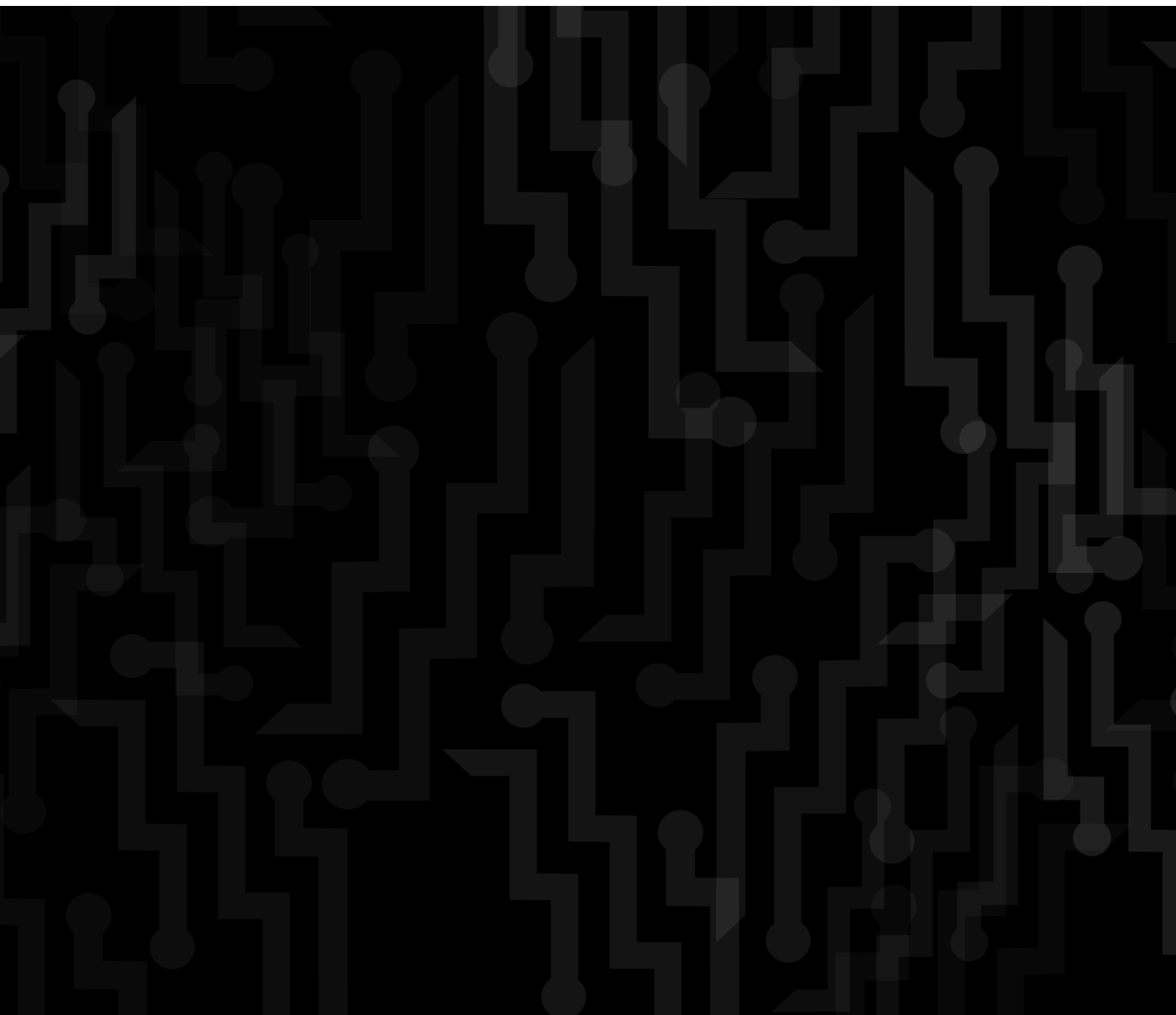


He puna mātauranga - creating a pool of learning resources for the Cawthron Institute

by
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Introduction

Background

Te Pītau Whakarei Karahipi is for Māori undergraduate students, and the scholarship is offered in partnership with Cawthron Institute and Ngā Pae o te Māramatanga. Cawthron Institute is developing a wānanga series to assist staff as they engage with external Māori groups in the Research Science and Innovation space. This series will cover te reo and Mātauranga relevant to research areas; kawa and tikanga applications within research; contexts of Mātauranga relating to taiao; Te Tiriti o Waitangi; co-development; Wai262, and more. The aim of the Scholarship is to support the generation of a Puna Mātauranga, or corpus knowledge base of Mātauranga Māori research, and learning resources that can be dispersed to the wider Cawthron platforms, research leaders, and technical teams.

Summer Internship purpose

1. To learn about a science institution and build a Māori intern's capability and capacity to pursue different avenues of science; and,
2. To support Cawthron in creating Māori resources to support staff.

Development of He Puna Mātauranga

Māori in science

Science faces a daunting challenge in addressing the underrepresentation of Māori within its systems. Māori in New Zealand Universities only make up 4.8% of the academics despite making up 16.5% of the population of Aotearoa (McAllister et al., 2022). While this is a glaring issue, the research, science, and innovation (RSI) sector reflects a more troubling demographic composition having only 1.7% identifying as Māori and Pacifica within the RSI sector (Sommer, 2010). This problem calls for stronger confrontation through educational systems and initiatives that directly address this ongoing issue such as Te Rōpū Āwhina (Victoria University of Wellington). Often these initiatives are built around concepts that are familiar to young Māori like an emphasis on whānau values (Wilson et al., 2011).

However, culturally supportive initiatives are predominantly based in large University institutions and lack the proper facilities to support young Māori academics in a culturally

safe environment (Pihama et al., 2019; Potter and Cooper,2016). Other initiatives like pūhoro which begin in high school are currently developing to excel Māori rangatahi into STEM however, there is still a lack of infrastructure to support Māori at tertiary level. Crown research institutes also recognise their contribution to Te Ao Māori and are working towards inclusion of Te Ao Māori within their institutions. It is crucial for institutes to increase their capabilities in Te Ao Māori if they want to address Māori underrepresentation within the science sector.

Mātauranga and sciences debate

Another issue to address is that concerning mātauranga Māori within the RSI sector. Mātauranga has been heavily criticised throughout the history of Aotearoa. There are numerous mechanisms that have diminished Māori Mātauranga such as the Tohunga Suppression Act which inhibited not only experts in Rongoa Māori but also most experts in many facets of Te Ao Māori (Woodard,2014). There is also the native schools act that punished tamariki for practicing their culture (Kai'ai Mahuta, 2014). This amongst many other operations of systemic oppression have caused a stigma that devalues and ignores mātauranga or exploit this knowledge without any engagement with Māori who are privy to it (Whetu and Whetu,2017). This systematic oppression has not been excluded from the RSI sector and has continued to exploit all aspects of Te Ao Māori.

Even though Māori represent only a small portion of the science community, they are given an incomparable amount of work often having to be experts in multiple fields while having extended knowledge of Mātauranga. This leaves Māori scientists vulnerable especially in a cultural sense. We are the connection between Te Ao Māori and science creating further work as well as roles to fill when it comes to engagement between both parties.

Current mechanisms in science

Te Tiriti o Waitangi serves as the foundation of the relationship between Māori and the British crown. Due to this partnership that has not always been upheld, there is an obligation to work with and incorporate Māori within all of Aotearoa's work. While scientists have been quick to grasp the fact that Te Ao Māori involvement must be improved, it has been my experience that they have become accustomed to a structure set by Western science. This structure inevitably prioritises a Western worldview and rarely incorporates or engages with Mātauranga Māori (Broughton et al., 2015). Although there is enthusiasm from scientists,

there is also a lack of understanding and this requires an adjustment period. It requires adaptation from scientists to work with cultural structures they have little interaction with (LYVER, 2005). Guidance and assistance from those with knowledge in how to approach Te Ao Māori respectfully is desperately required.

About Cawthron

Cawthron institute provides an opportunity to address challenges faced by Māori. As an independent organisation, Cawthron is not held by treaty obligation, however, they are working to become a tāngata tiriti organisation. Cawthron also seeks to change aspects within the RSI sector to better meet the needs of Māori communities. The creation and ongoing development of Te Kahui Aio (Māori research team) shows the commitment Cawthron has to making this change reality. This team helps to provide support and clarity on mātauranga use by Cawthron while also allowing individual members to conduct research. This team does face a myriad of challenges and cannot be everywhere at once therefore capability needs to be developed for their non-Māori counterparts.

Confronting these issues in my internship

To try and confront the challenges faced by Māori within the RSI sector and within Cawthron, during my internship I decided the best plan of action was to develop a survey. The purpose of this survey was to gather data to understand how Cawthron engaged with Māori and how much about Te Ao Māori they understood. The outcome of this survey was to provide Te Kahui Aio (Cawthron's Māori research team) with this data and ways to address gaps within the organisation. It was hoped to also show the capability within the institute. Upon gaining the results of this survey, Te Kahui Aio will have the ability to understand how Cawthron as an organisation understands mātauranga use and Te Ao Māori in their interactions with Māori.

The survey focused on topics such as WAI262 and Vision Mātauranga. Questions revolved around the confidence that scientists had regarding these topics; their engagement levels with Māori (e.g., whānau, hapū, iwi); their experiences and understanding of Te Ao Māori (e.g., how often they are engaging with it at work etc). Finally the survey covered how scientists would like resources presented in a consumable way. This is an important part as the resources need to be engaged with in order to see the change we are seeking, therefore they need to be presented in a format that draws the target group in such as, for example, a

podcast. This survey work was later integrated in to a companywide competency survey. This work can hopefully provide some useful information on the existing knowledge gaps found within Cawthron and how Te Kahui Aio can respond to them. The survey is still progressing with results unavailable at the time of concluding my internship.

Cawthron recognised the mammoth task placed on a summer intern student and is not deterred by the progress I have made. Me mahi tika ana- Cawthron wanted the work to be completed in the proper way for our Māori communities. So, the work is ongoing for the scoping exercise and the development of resources. Due to this, Cawthron has decided to continue to employ me throughout my final year of study.

Resources developed

Maori history and Science project

This presentation certainly had to be my favourite of the projects I have been a part of. This is the creation of a resource that incorporates science and history while sharing the role that these fields play in Te Ao Māori. This was a freeing exercise that allowed me to utilise the fields I have specialised in at university. The goal of this presentation series was to share and confront history and how it plays a role in both fields today. This has not yet been completed but the structure is there to allow for further building and addition to the core ideas. The hope is that this piece of work can provide an effective and comprehensible resource that helps to explain Māori history in Aotearoa. This will also help to provide support in the need to correctly understand WAI262 and Vision Mātauranga as well as the importance of correct implementation of both. A resource like this can help to provide a stable base to create more resource on science specific topics including Vision Mātauranga. This is complex subject to cover and has led to further employment for myself within Cawthron to provide a strong resource.

Other project experiences

Rongoa Māori project

I was lucky enough to be given the chance to help another intern name Ashleigh on her project. This project investigated Rongoa Māori and its ability to increase the thermal tolerance of Green lipped mussel spat. This was done through the addition of extracts of

Native New Zealand plants that have been used traditionally as Rongoa. The extracts used were harakeke, kawakawa, mamaku, kōwhai, mānuka and pōhutakawa. These extracts were added to the water the mussel spat was in then removed and put in varying heats to see the response from the mussels. I was involved in almost all of the lab work for this experiment. When it came time to produce the research article I helped to provide a Māori perspective on mātauranga and its use. This mainly covered the innate value of the plant extract and mussel species and how this study can serve as an early example of collaboration between science and mātauranga. My focus was that mātauranga has tremendous applicable value but has been exploited throughout history. Therefore, such use needs to be well thought out and considered rather than mātauranga being incorporated after the fact to boost the reach of a study.

Whakaki project

There was also the opportunity to work with an intern named Sylvia on her project. This is one that is close to home being that it is based in Whakaki not too far from Nūhaka where I whakapapa back to. This project was on designing a survey on tuna consumption in Lake Whakaki. The goal was to gain an understanding of the quantity and sections of tuna (eels) were consumed. The goal is to later use this survey to create resources to help people understand the safe amounts to eat from this eutrophic lake. I worked with Sylvia to help narrow down the survey and provide some help in how to communicate this survey with the stakeholders of Whakaki. I provided help on question and survey design for this study.

Overall Pītau Whakarei Karahipi experiences

This was an awesome experience for me as I was able to implement some of the things, I've learned at university but also learn within a Māori space. I was able to get a better understanding of how Vision Mātauranga and WAI262 apply within the science sector. I was also able to gain insight into the science sector especially how independent organisations fit into the frame. This experience has given me the opportunity for continued employment within Cawthron and the ability to continue learning while contributing to the sector as a whole.

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