Te Hiringa Taketake:
A Literature Review

Creating a Māori and Pacific student virtual online mentoring programme in
Te Ara Auaha, Faculty of Design & Creative Technologies, AUT

March 2022

Tania Kaʻai, Tania Smith-Henderson, Hazel Abraham & Lui Hellesoe
Te Ipukarea Research Institute, Auckland, New Zealand

TE IPUKAREA

Te Ipukarea Research Institute

120 Mayoral Drive, Auckland
Phone: +64 9 921 6526
Email: tsmith-henderson@aut.ac.nz
Website: www.teipukarea.maori.nz

Contents

Introduction

Historically, the education achievement gap between Māori and non-Māori students in Aotearoa New Zealand is significant (Abraham, 2021; Pihama et al., 2019). This is even more pronounced in the tertiary education sector where there is a disparity between Māori and non-Māori educational achievement and outcomes (Mayeda et al., 2014; Theodore et al., 2015). Support systems like student-peer mentoring are vital for Māori and Pacific university students because these support mechanisms have the potential to improve student academic results, student engagement and student retention (Kensington-Miller, 2010; Pihama et al., 2019; Pirini, 2017). Mentoring models are generally based on face-to-face contact. However, given the changing context of university landscapes and the ongoing impact of the Covid-19 pandemic on Māori and Pacific students educational outcomes and their access to higher education (Hemi et al., 2021), virtual mentoring models maybe beneficial in navigating a new educational landscape.

Ka Hikitia – Ka Hāpatia (the Māori education strategy) (Ministry of Education, n.d.-b, n.d.-c, n.d.-d) and the Tertiary Education Commission's (TEC) current schemes for transforming educational success for Māori and Pacific learners require tertiary education providers to be accountable for reducing the inequity gap between Māori and non-Māori and Pacific and non-Pacific students. Most providers use mentoring programmes for Māori and Pacific students of varying effectiveness as a way of addressing TECs requirement (Mara & Marsters, 2009; Pirini, 2017), but are they successful? This literature review will consider the socio-cultural and historical factors and review tertiary mentoring programmes already in place in a range of tertiary providers in order to design a culturally responsive and suitable mentoring programme to pilot in Te Ara Auaha, Faculty of Design and Creative Technologies (DCT) at the Auckland University of Technology (AUT) with Māori and Pacific students.

Impact of education on Māori in Aotearoa New Zealand

The historical shaping of New Zealand's education system has significantly impacted on Māori educational achievement and wellbeing across successive generations (Abraham, 2021; Durie, 2021). The effect of cultural trauma (CT) has occurred because of the Eurocentric way education was used to assimilate Māori and remove their identity as Māori (Abraham-O'leary, 2015; Abraham, 2021; Pihama et al., 2014). Consequently, this form of CT experienced by Māori in New Zealand's education system has left scarring and soul wounding on many successive generations of Māori students and whānau (Abraham, 2021; Duran, 2006; Pihama et al., 2014). Institutional disadvantage, through the use of overt and covert legislation and educational reforms, during the nineteenth and twentieth century, had affected Māori students in mainstream education (Abraham-O'leary, 2015; Ka'ai et al., 2022), and this form of bias and discrimination continues to be perpetuated through structural mechanisms (quality teaching and learning, systems and people issues) within mainstream universities in Aotearoa New Zealand (Abraham, 2021; Ka'ai et al., 2022; Mayeda et al., 2014; Pihama et al., 2019; Theodore, et al., 2017).

New Zealand's education system has failed to ensure success for many generations of Māori (Abraham-O'leary, 2015). The impending escalation of the colonising environment experienced by Māori and whānau in education has added to the growing achievement gap of Māori learners at all levels of New Zealand's education system (Abraham, 2021; Ka'ai-Mahuta, 2011; Pihama et al., 2014).

The continuation of poor teaching practices, the lack of quality culturally responsive leadership and the bias organisational structures in education organisations has had dire consequences on Māori outcomes and continues to affect the survival of te reo Māori (the Māori language) (Doerr, 2009; Hill, 2017; Potter & Cooper, 2016; Waitangi Tribunal, 1986). Pihama et al. (2019) argues that many challenges still exist for Māori, due to the continued deficit theorising and marginalisation of mātauranga Māori (Māori knowledge) in mainstream higher education and the normalisation and privileging of white spaces within tertiary education organisations (TEOs) (Milne, 2013; Potter & Cooper, 2016). There is further evidence to suggest that the impact of CT has added to the inequities that exist for Māori students accessing higher education, and little attempts has been made within mainstream tertiary organisations to address this with Māori collectives (Ka'ai et al., 2022; McAllister et al., 2019; Pihama et al., 2019*)*.

The tertiary education reforms of the 1990s had a detrimental impact on Māori succeeding in the tertiary environment (Waitangi Tribunal, 1999). So, Māori collectives had sought to establish three Wānanga[1], namely Te Wānanga o Aotearoa, Te Whare Wānanga o Awanuiarangi and Te Wānanga o Raukawa, (Waitangi Tribunal, 1999). This collective experienced much hardship and resistance from the government (McRae-Tarei; Taituha, 2021; Te Ratana, 2021; Waitangi Tribunal, 1999). The Wānanga Capital Establishment Report details the breaches of the government and their failure as the Crown to (Waitangi Tribunal, 1999):

> …recognise the right of Māori, in terms of the Treaty of Waitangi, to receive capital funding, in order to provide properly for the education of Māori through programmes, and in an environment, designed to enhance their tertiary educational opportunities (p. vii).

More recently in the 21st century, other Māori collectives within mainstream universities have sought to find solutions to these issues by establishing kaupapa Māori (a philosophical doctrine, incorporating the knowledge, skills, attitudes, and values of Māori society) support initiatives, such as Te Kupenga of MAI (The Māori and Indigenous programme) (MAI), a Māori and Indigenous scholar network offering a range of strategies that focuses on building capability amongst Māori and indigenous postgraduate students throughout Aotearoa New Zealand (Pihama et al., 2019), and embedding Mahitahi (cooperative learning), an indigenous collaborative methodology, used in postgraduate research supervision of Māori and Pacific postgraduate students who are completing master or doctorate qualifications in higher education (Abraham, 2022; Ka'ai et al., 2022).

This difference in higher education exists because mainstream universities promote individualism and neoliberal ways of being whereas from a Māori lens it is about Mahitahi, collaborative approaches that are centred on shared power relationships and collective solutions (Abraham, 2021; Ka'ai et al., 2022; Pihama et al., 2019). Not surprisingly, in mainstream universities is where most Māori students are situated and the struggle is for these educational organisations are to make the cultural and educational practice shifts required of them to strategically improve Māori learner outcomes (Hohepa, 2010; McKinley & Hoskins, 2011; Wilson, 2017). Hence, Māori continue to have a complicated relationship within the university environment with non-Māori educators, leaders and

---

[1]   A tertiary institution that caters for Māori learning needs established under the Education Act 1990

those in charge because of how education tends to privilege and posit Western knowledge and values over mātauranga Māori ways of teaching and learning and research.

The impact of education policies and tertiary education sector approaches on Indigenous Māori and Pacific students' participation in universities

A university education can make a difference for Māori and Pacific students if they can access this opportunity (Hemi et al., 2021; Matapo, 2019; Theodore et al., 2020). But history has shown that Māori and Pacific have faced extreme hardship and trauma from historical policies and practices that had impacted on their educational achievement (Abraham, 2021; New Zealand Qualifications Authority, 2019) and limited Māori from being able to enrol into universities until the later stages of the twentieth century (Hook, 2008). One of the root causes for the underachieving of Māori and Pacific students in tertiary education is because of the long-lasting effects of colonisation on the people, land, culture, and values (Matapo, 2019; Pihama et al., 2014). Colonisation has led to Western ways of thinking becoming more normalised, personifying the idea that Western ways of thinking are more progressive than Māori or Pacific knowledge (Matheson, 2007). Moreso, Māori and Pacific students benefit more from an educational system not influenced by Western ways of learning (Bishop, 2003), whereby privileging Western knowledge systems in tertiary education, consequently, threatens the success of Māori students (Gray, 2021). The negative attitudes exposed to Māori students in mainstream tertiary institutions, is due to the set-up of colonial structures that are an unwelcoming pretense for students who already find it more challenging to transition into higher learning than their Pākehā (New Zealander of European descent) peers.

The urgency for systemic change within New Zealand's education system has always been voiced by Māori (Berryman & Eley, 2017) and Pacific peoples (Matapo, 2010), but historical policies have not benefited Māori and Pacific students and their communities in New Zealand's tertiary education sector (Theodore et al., 2020). Seven key documents that guides New Zealand tertiary education organisation's work in ensuring the success of Māori and Pacific students include:

(i)   *Te Tiriti o Waitangi* (the Treaty of Waitangi) (Ka'ai-Mahuta, 2010);
(ii)   *Ka Hikitia-Ka Hāpaitia: Māori education strategy* (Ministry of Education, 2020, September 20);
(iii)   The Tertiary Education Strategy (Tertiary Education Commission, 2020, November 13);
(iv)   The Statement of National Education and Learning Priorities (NELP) (Ministry of Education, 2020);
(v)   the *Ōritetanga learner success approach* (Tertiary Education Commission, 2020, February 28);
(vi)   the Action Plan for Pacific Education 2020-2030 (Ministry of Education, 2021, November 30); and
(vii) Education (Pastoral Care of Tertiary and International learners) Code of Practice 2021 (Ministry of Education, 2021, July 16).

It is relatively, unknown, how effective these documents are used by educational organisations in bringing about systemic change and success for Māori and Pacific learners.

The need to be better at serving Māori, whānau and their communities across all education sectors is clearly outlined in several iterations of the government's cross-agency strategy for the education sector, *Ka Hikitia* (Abraham, 2021; Berryman & Eley, 2017; Ministry of Education, 2013). This urgency

for systemic change is also recognised within the Pacific space (Hemi et al., 2021; Matapo, 2019). The following section provides a summary background of the different iterations and events that contributed to the Māori education strategy.

Ka Hikitia (Māori education strategy) - Background

The purpose of the Māori education strategy is to inform the education sectors practice and show a way forward by the government in collaboration with different sectors. The initial Māori education strategy was formalised in 1999 and had three goals:

- Raise the quality of English-medium education for Māori;
- To support the growth of high quality *kaupapa Māori* education; and
- To support greater Māori involvement and authority in education

(Berryman & Eley, 2017, p. 1).

Over time the Māori education strategy has been shaped to be more specific for each sector. Considering the past two decades, how best educational practice and leadership is shared, and can contribute to transforming Māori outcomes in higher education is seemingly sparse. Table 1 below, outlines the history of *Ka Hikitia* and the events that have contributed to its varying iterations.

Table 1

History of Ka Hikitia in New Zealand's education system

Year	Outline
1998	Extensive consultation undertaken by the Ministry of Education and Te Puni Kōkiri, the Ministry of Māori Development with Māori about developing a Māori education strategy.
1999	The first Māori strategy published 3 main goals: • Raise the quality of English-medium education for Māori; • Support the growth of high quality *kaupapa Māori* education; and • Support greater Māori involvement and authority in education.
2005	New initiatives are developed such as research projects and evaluations providing more information on student achievement and *Iwi*-Ministry partnerships. Some movement in Māori student achievement. The 1999 Māori Education strategy republished to indicate the Ministry of Education commitment to Māori education.
2006	Redevelopment of Māori education strategy; Setting priorities for Māori education is an internal document setting out the strategies for the next five years of engagement with *iwi* and key education sector groups. This strategy also contributed to the Tertiary Education Sector strategy 2007-2012.
2007	The draft Māori education strategy public consultation between August and October on the draft strategy is undertaken
2008	*Ka Hikitia-Managing for Success: The Māori education strategy 2008-2012 i*s released.
2012	The Ministry of Education leads the *Me Kōrero: Let's talk* survey, giving feedback for informing the next stage of implementing *Ka Hikitia*.
2013	*Ka Hikitia - Accelerating success* 2013 – 2017 is released.
2021	*Ka Hikitia - Ka Hāpaitia* is released

Note: *Ka Hikitia and its various iterations is the Ministry of Education's Māori education strategy.* Adapted from *Ka Hikitia – Timeline* (no page number) by Ministry of Education, 2021, September 20.

Achieving any systematic shifts that support Māori and Pacific learners in tertiary education is difficult. Redefining Western tertiary education in consideration of Māori and Pacific learners is influenced by the direction of the Tertiary Education Commission and the Ka Hikitia cross-agency Māori education strategy (Ministry of Education, 2021, September 20; Tertiary Education Commission, n.d.-c). An ongoing framework adopted from the *Ka Hikitia Accelerating Success Strategy 2013,* the *Ka Hikitia – Ka Hāpatia* programme (Ministry of Education, n.d.-b, n.d.-c & n.d.-d) is a thirty-year strategy aimed to embed support systems into tertiary education directly benefitting current and future Māori students. Furthermore, *Ka Hikitia* follows a structure of actions categorised into five outcome domains:

> Te Whānau (within the context of their family);
> Te Tangata (Māori are free from racism);
> Te Kanorautanga (Māori are diverse and understood);
> Te Tuakiratanga (Māori identity, language, and culture); and
> Te Rangatiratanga (Māori authority and agency) (Ministry of Education, n.d.-c).

These outcomes mean that discussions with Māori learners, whānau (family group, extended family), and iwi (often refers to a large group of people descended from a common ancestor) is needed. Alternatively, the same discussions are needed at a government, national, regional, and local levels to ensure the educational changes are made. Overall, a transformative change to extract the potential from Māori students has yet to be realised.

The New Zealand Tertiary Education Commission: Ōritetanga – Learner Success Framework

Helping all learners to succeed is critical to a successful and thriving economy and society in New Zealand (Tertiary Education Commission, 2020, February 28). The Tertiary Education Commission (TEC) is the government's key agency directed by a board of commissioners appointed by the Minister of Education (Tertiary Education Commission, n.d.-b; n.d.-c). TEC has acknowledged their failure to start successful programmes to help indigenous students achieve at higher levels with hundreds of initiatives failing to improve the pass rates of Māori and Pacific students (Gerritsen, 2021). For Māori and Pacific students, this means being under-prepared for the demands needed for university studies relative to their Pākehā peers (Theodore et al., 2020; Theodore et al., 2018). The well-documented disadvantages experienced by Māori and Pacific students have created a pressing need for fresh and innovative approaches that best support indigenous students' successful transition into tertiary study (Matapo, 2019; Ministry of Education, 2021, November 30). This revitalised approach also includes delivering an education experience appropriate to the needs of Māori, Pacific and disabled learners (Tertiary Education Commission, 2020, February 28).

According to Hemi et al. (2021), the tertiary success framework, *Ōritetanga* is designed for all learners developed by the TEC. This TEC initiative is focused on ensuring that every learner receive the support that they need to succeed in education, to achieve sustainable employment and lead fulfilling (Hemi et al., 2021). Below in Figure 1 The *Ōritetanga* – Learner Success framework details the key components required to deliver on equitable outcomes for learners. Critical to this systemic change within the tertiary education sector requires harnessing a collective approach, a willingness amongst stakeholders to create change, addressing structural barriers and systems that impact on learners, and developing strong relational-trust partnerships with each key stakeholders of the

tertiary education sector, which includes involving whānau, and learners' communities in the process. The same emphasis on strong relationship trust is also critical in support initiatives such as mentoring programmes for Māori and Pacific students (Hohepa, 2010; Pihama et al., 2019). The Ōritetanga Learner Success Framework offers ideas that could be considered in the design of a Māori and Pacific student mentoring framework in Te Ara Auaha, Faculty of Design and Creative Technologies at AUT University.

Figure 1

Ōritetanga Learner Success Framework

Note: *Ōritetanga learner success is a framework by the commission to ensure all learners succeed in education.* Adapted from *Ōritetanga – tertiary success for everyone.*
By the Tertiary Education Commission, 2020, February 28

Mentoring and its role in student / learner success

Mentoring is a protected relationship between the mentor and mentee. This type of relationship can also be found in peer mentoring (Quince & Medland, 2016). The definition of what mentoring means in an educational context is not clear, as different literature surrounding mentoring in higher education gives different meanings for the word, such as coaching or tutoring (Pleschová & McAlpine, 2015). As an example, Williams (1991) uses mentoring to describe informal meetings where mentors and mentees discuss teaching concerns strategies and exchange teaching material. Chng and Kit (2012) define mentoring as a mutual relationship between a senior and a junior teacher, where the old would give feedback and recommendations on the junior's work. Pleschova et al. (2015) synthesize many literature definitions of mentoring as the cooperation between a more advanced and a less-developed colleague to enhance academic knowledge and practices through regular meetings, observation, feedback, and discussions. Although this definition provides a more straightforward meaning of the term mentorship, Pleschova et al. (2015) denounce their definition as the term 'coaching' fits their description of 'mentoring'. Although the definition of mentoring is flexible, the goal of mentoring is static-to build a relationship that supports the learning outcomes of both mentor and mentee.

International research – Mentoring programmes

The following selected examples of mentoring programmes and research projects show how mentoring programmes can be used to improve student outcomes and build future pathways for students into their careers. The use of peer-student mentoring programmes helps with providing friendly environments for new students to universities while giving current students the opportunity to develop their capabilities and skills and with building their confidence, beneficial for their future career prospects (Quince & Medland, 2016). The literature also notes that "the first 6 to 8 weeks of a new student's time at university are the most crucial" (Wilcox et al., 2005, p. 715). During this time students are at great risk of dropping out of university (Quince & Medland, 2016). This background information will be useful to know in the creation of a Māori and Pacific student mentoring programme in the faculty.

Mentoring Programme 1 - James Cook University, Australia

Treston (1999) discusses the successful factors and initiatives for establishing a peer-mentoring programme in a small university campus in tropical north-eastern Australia. This student focused mentoring programme at James Cook University in Cairns provides background details for the design and implementation of a programme. The programme starts with an orientation welcome to all students in their schools (Treston, 1999). Treston (1999) outlines the key steps:

- The amount and type of contact between Mentor and Mentee varies;
- Group meetings are for social and study skills socially;
- Mentors, as part of their agreement with the coordinator, make contact with their Mentees in Weeks 3, 6 and 9 of the semester by phone, e-mail, individually or as a group;
- The Mentor afterwards reports verbally, by e-mail or by submitting a questionnaire to the Study Skills Adviser on the progress of the group; and
- Some Mentors have social get-togethers with their groups on or off campus

(p. 236).

Mentoring Programme 2 - Student-Employee Reverse mentoring

There are several alternatives to mentoring. An innovative pedagogy known as reverse student mentoring is proving popular in helping students' readiness in their careers (Raymond et al., 2021). In a case study, Generation Z students, who are young employees used reverse mentoring to help older corporate executives from a Fortune 500 company to develop a plan for knowledge continuity/intergenerational knowledge transfer (IKT) in the workplace (Raymond et al., 2021). Raymond et al. (2021) identified seven key steps to replicate the pedagogy for the mentoring approach include:

- prepare;
- define the problem;
- explore the problem outline class topic relevance;
- conduct reverse mentoring determine findings; &
- present recommendation   (p. 88).

According to Raymond et al. (2021), reverse mentoring can help students career readiness. Raymond et al. (2021) details what each step involves in the mentoring process.

- ➡ Step 1 is selecting an organisation and work with their executives to implement a mentoring opportunity. Reverse mentoring should be completed during the start of the semester with a defined class of students. Depending on the department and university structures, a corporate donation for students' support could be provided.
- ➡ Step 2 should see the company introduce the problem to the class through reverse mentoring and the impact it has on their business.
- ➡ Step 3 is where the students explore and seek more information to understand the extent of the problem.
- ➡ Step 4 then introduces the students to related course topics through methods such as lectures, discussion, guest lectures, and/or external readings.
- ➡ Step 5 involves using reverse mentoring where students (mentors) are paired with company employees (mentees). This can be achieved by presenting the company with student bios and matching employees with students based on who they think employees would find it easy and comfortable to talk with. In this situation mentees (company employees) need to provide time for mentors (students) and set agreeable meeting times over an agreed period, by way of phone or video calls.
- ➡ Step 6 is determining the findings. Students undertake the data collection through interviews in the implementation stage. Students work with mentees to brainstorm and design recommendations for the company. Here students may use a data analysis process, which could involve decoding the transcripts and using Invivo (text analysis software).
- ➡ Step 7 involves students presenting their recommendations to the company representatives, and mentees. Here the students must practice their presentation prior to meeting with the company representatives. As part of the process the instructor (lecturer/teacher) may seek secondary sources of research undertaking such as interview and field notes.

(Adapted from Raymond et al., 2021, p.88)

Reverse student mentoring provides another innovative pedagogical tool to be included in the design process of a purposely created Māori and Pacific student mentoring work, using a range of technological tools such as the internet and virtual platforms like Discord.

Mentoring programme 3 – Student led peer mentoring at University South Hampton, UK

This programme explores how social media was used as a tool in a student-led peer mentoring initiative for the Faculty of Humanities, located at The University of Southampton (Quince & Medland, 2016). This peer mentoring initiative commenced in September 2014 with a cohort of 750 undergraduate students across seven subject areas (Quince & Medland, 2016). The scheme was part of a broader, student-led, careers initiative across all year levels within the faculty, which was known as the 'mission employable' project (Quince & Medland, 2016). Social media, Facebook and Twitter, had been used to engage mentors and mentees and to communicate with students across the mentoring programme. The purpose of Facebook groups was to initially build connections and to develop relationships through online contact, initially between the student peer mentoring coordinator and the student mentors, then between the mentors and their mentees (Quince & Medland, 2016). There were two evaluation reviews, one that took place at the mid-point and the other at the endpoint. The findings from the peer mentoring programme noted that social media led to an increase in student engagement and an enhanced student experience within the humanities faculty (Quince & Medland, 2016).

Types of Māori and Pacific student support initiatives and mentoring programmes in universities across Aotearoa New Zealand

The following mentoring programmes provide ideas on how mentoring programmes have been designed with the central focus on improving learner success and embedding cultural knowledge, tikanga and Māori and Pacific values into the programme. These mentoring programmes, as above, offer insights which can be applied and considered in the design of the Māori and Pacific student mentoring framework in the faculty.

University of Otago

The University of Otago offers academic mentoring programmes for Māori and Pacific students.

Ka Rikarika a Tāne – Mentoring programme

The Ka Rikarika a Tāne programme is for Māori students who are studying at the University of Otago. The programme is based out of Te Huka Mātauraka[2] (The Māori Centre). Those students who are part of the programme are matched with a mentor who is a "senior student or staff member in their chosen area of study" (University of Otago, n.d.-a). The requirements for the mentee / mentor relationship is to:

- Meet once a week to provide on-going support and guidance.
- Attend hui with other mentors and mentees, staff from the Māori Centre and department faculties.
- Participate in various activities.

(University of Otago, n.d.-a).

Taimane – Academic mentoring programme

The Taimane programme is for Pacific students enrolled at the University of Otago. This programme is coordinated by the Pacific Islands Centre and is aimed at "helping Pacific students succeed and

---

[2]   The use of the 'k' in Huka and Mātauraka is dialectual. The 'k' is used by Ngāi / Kai Tahu, a tribe of the South Island

maximise their full potential" (University of Otago, n.d.-b). Taimane provides a "four-phase wrap around academic mentoring service...in collaboration with the academic tutorial programme" (University of Otago, n.d.-b). The four phases are:

1. *entation Fono.*
2. Checking back-in with students in the first few weeks: *How's it going?*
3. Touching base with students after their first assignment and implementing appropriate support structures: *After the first assignment /assessment.*
4. Ensuring students are prepared for exams and touching base with them before the semester ends.

<div align="right">(University of Otago, n.d.-b).</div>

The Pacific Islands Centre and the divisions[3] select academic mentors from those who are staff, senior students, or graduates. The role of the mentor in this programme is to:

- Help create a successful society of knowledge engineers and future leaders
- Contribute to a healthy society
- Become positive role models
- Receive good training for future career opportunities
- Can add mentoring experience to their CVs too!

<div align="right">(University of Otago, n.d.-b).</div>

In addition to the two programmes listed above, each academic division at the University of Otago have kaiāwhina Māori (Māori student support officers) who are "integral to providing assistance to Māori students…" (University of Otago, n.d.-c). Kaiāwhina are responsible for,

- relating to you and your course of study
- To act as a point of contact for all Māori students enrolled in Humanities papers and degrees
- To facilitate access to pastoral care, student services, course planning advice within the university

<div align="right">(University of Otago, n.d.-c).</div>

Lincoln University

Te Manutaki

Lincoln University established Te Manutaki, as a collaborative approach in assisting and supporting Māori and Pacific students navigating their educational journey (Lincoln University, n.d.-a). In collaboration with Te Manutaki, is Te Awhioraki, a Māori student-led association which provides "social, cultural and academic support to students" (Lincoln University, n.d.-a).

Pasifika ki Aoraki

Lincoln University Pacific Islands Student Association works alongside the Lincoln University Students Association in providing "social, cultural and academic assistance…and workshops to support Pasifika identity on campus" (Lincoln University, n.d.-b).

---

[3] Division is equivalent to faculty at AUT

University of Canterbury

The University of Canterbury offers four mentoring programmes, two of which are solely directed at Māori and Pacific students.

Māori leadership programme

This programme is aimed at new Māori students to the University of Canterbury. First year students are "paired up" (University of Canterbury, n.d.) with a mentor / tuākana which are normally students who have completed their first year of study. To ensure students are paired with an appropriate mentor / tuākana, students are asked if they have a preferred type of mentor / tuākana, they are asked to list the characteristics, such as:

> …similar cultural or religious background, family situation or gender (University of Canterbury, n.d.).

Before being paired, mentors undertaking training with the Māori Development team based on the "tuākana / tēina relationship" (University of Canterbury, n.d.).

Pacific mentoring programme

The Pacific mentoring programme are for first year Pacific students. The mentors induct the students into life at the University of Canterbury, they provide support and services / events to Pacific students. To obtain a mentor, Pacific students need to register.

Other mentoring programmes

The other mentoring programmes for all students at the University of Canterbury include,

- UC Mentoring Programme
- UniLife group mentoring for new-to-UnC students not living in halls
- College based and club mentoring

(University of Canterbury, n.d.)

Victoria University of Wellington

Āwhina Programme

The Āwhina programme is a culturally inclusive programme directed at Māori students who are transitioning from high school or work into university study and to current Māori students. The programme is delivered by staff and offers one-on-one advice and mentoring, tutorials, workshops etc.

Pasifika Student Success

In 2019, the Pasifika Student Success (PSS) team was established to support "Pasifika students navigate their transition into tertiary study with a focus on academic excellence, personal growth and well-being" (Victoria University of Wellington, n.d.). At the heart of the PSS team is the Pacific culture. Through the Pacific culture, the team promotes "learning and teaching communities" (Victoria University of Wellington, n.d.).

Within each faculty at Victoria University, there are Pasifika academic mentoring programmes. However, these are under review. Other support that is available to Pasifika students by the PSS team, include:

- Study spaces
- Pastoral or holistic support
- Postgraduate support

(Victoria University of Wellington, n.d.)

Massey University

Te Rau Puawai

Te Rau Puawai is an academic support programme in health-related fields. This programme has been running for the last 20 years. Te Rau Puawai is a collaboration between Massey University and Health Workforce NZ (Massey University, n.d.-a). Te Rau Puawai is not a teaching programme, rather it provides students with academic support that includes:

- contributions to cover your fees and travel costs (paid directly to the university)
- an academic mentor
- an academic support tutor
- individual learning and personal support
- help with course planning
- an essay writing and study skills workshop
- access to Māori community and student networks
- visits from our team to your home or workplace
- access to Te Rau Puawai whānau – a network of students from Kaitaia to Invercargill, at all levels in Māori mental health-related areas
- access to a computer, printer and the internet at the Manawatū (Palmerston North) campus.

(Massey University, n.d.-a).

To be part of Te Rau Puawai, students must,

- complete their courses through Massey University
- attend classes, contact workshops and exams
- attend Te Rau Puawai conferences and seminars
- maintain regular contact with the Te Rau Puawai support team
- focus their studies and employment in the area of Māori mental health
- tell Te Rau Puawai staff and lecturers about any challenges that may affect their study progress
- display leadership and act as role models
- create a profile for inclusion in our annual publication, Kia Ora.

(Massey University, n.d.-a.)

Pacific student teaching support

A tutoring programme is run out of the Pacific Student Success office which aids Pacific undergraduate students "build their confidence to understand their course materials and improve academic performance in their courses" (Massey University, n.d.-b). The tutors in this programme are students who have excelled in their courses previously. The support that they offer to students includes,

- provide advice on study preparation
- assist students understand lecturer's expectations with assignments and exams
- advise students on "best practice" for study and time management skills
- work with Pacific students to build understanding of course concepts for assessments and exams
- tutorials in both a face-to-face and online learning environment

(Massey University, n.d.-b.)

University of Auckland

Tuākana Academic support programme for Māori and Pacific students in the Faculties of Creative Arts and Industry, Arts, Sciences, Business and Economics

The Faculty of Creative Arts and Industry at the University of Auckland introduced an academic support programme for Māori and Pacific students called Tuākana. The aim of this programme is to "enhance academic success…" for Māori and Pacific students enrolled in the Faculty of Creative Arts and Industries (University of Auckland, n.d.). The programme is coordinated by senior students who organise the following activities throughout the academic year for the faculty's Māori and Pacific students:

- Academic drop-in sessions with kai
- Regular workshops within the students' discipline and across the faculty
- Assignment and examination wānanga
- Shared kai and kōrero throughout the year to foster Whakawhanaungatanga within the faculty.

(University of Auckland, n.d.)

The Tuākana initiative is to alleviate the external pressures facing Māori and Pacific students by providing:

- financial assistance for students facing hardship or need support.
- linking to other services in the broader university community.
- a culturally safe environment for students.

(University of Auckland, n.d.)

Immediate and short-term support is available for the faculty's student board and more importantly for their Māori and Pacific students who are participating in the faculty's academic programme and facing financial hardship. The type of support available immediately is:

Countdown vouchers
AT HOP vouchers
Gordon Harris vouchers
Food parcels
Sanitary products

(University of Auckland, n.d.)

Furthermore, the Tuākana initiative can assist Māori and Pacific students seeking access to wider university financial and personal support avenues. The type of support could be "accommodation costs, student emergency funding, scholarship opportunities, and health and counselling" (University of Auckland, n.d.).

Auckland University of Technology (*AUT*)

Māori and Pacific student support initiatives and mentoring programmes

Each year, the Office of Māori Advancement provides equity funding to the four faculties to provide peer mentoring support to improve the participation in and achievement of Māori and Pasifika students. One of the funded support programmes is the Hāpai programme. The aim of the Hāpai programme is to provide culturally responsive through one-to-one and group peer mentoring targeting the needs of the individual and collective group needs for Māori students. The key areas the programme focuses on is:

- ➥ building on individuals' positive self-concept when entering tertiary setting.
- ➥ improving access to Māori culture and Māori language through organised cultural initiatives.
- ➥ developing strong mentoring connections between role models and industry mentors with individuals as part of the transition into the tertiary setting.
- ➥ building culturally responsive relationships with faculty members and individuals' secondary teachers in the transition process into the tertiary setting (career choices).
- ➥ realising individuals and families' aspirations for educational advancement as Indigenous people.

(H. Abraham, personal communication, October 2021)

Two co-authors of this literature review were employed as a postgraduate peer mentor and a hāpai for undergraduate Māori and Pacific students across Te Ara Auaha, Faculty of Design and Creative Technologies. The Hāpai programme was very much student lead and planned. Figure 2 shows the hāpai programme in Te Ara Auaha in 2021 with the postgraduate peer mentor in the middle.

Figure 2

Hāpai in DCT
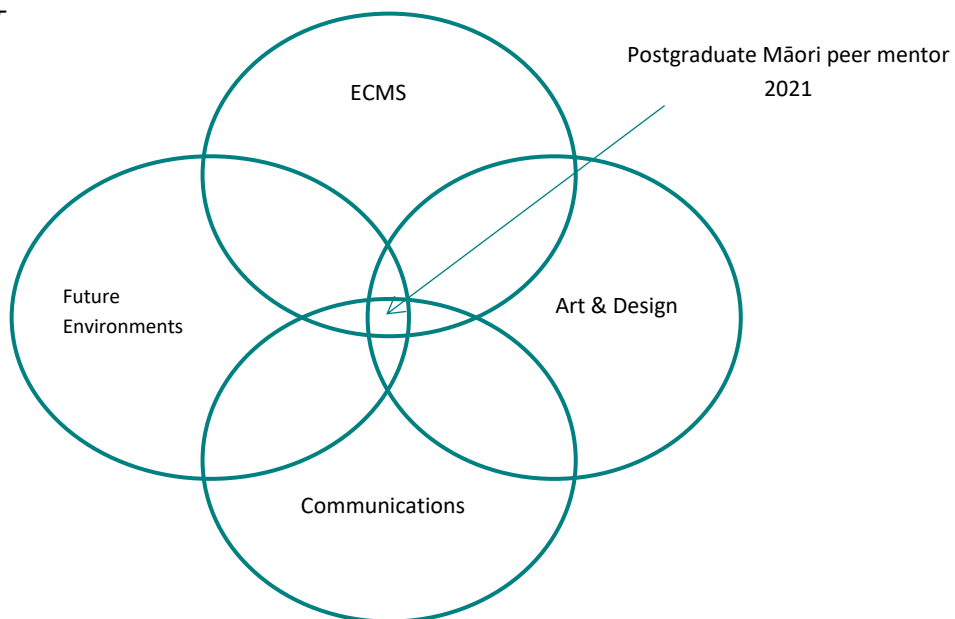
Other peer mentor programmes at AUT

The following table highlights some of the mentoring programmes in the faculties.

Table 2

Mentoring programmes in other faculties

Piki Ake Kaipakihi Māori	A programme using Māori cultural concepts to enhance success for Māori students enrolled in the Faculty of Business, Economics & Law
Tuākana	Māori student academic mentors across various years of study provide additional academic support to Māori students predominantly in their first year of study in the Faculty of Health & Environmental Sciences and in the faculty's common core papers and to those students specialising in respective clinical and health-related pathways
Hāpāi Māori Mentor Scheme	A mentor programme to improve academic performance of undergraduate students based on manaakitanga where senior students nurture those students coming through academia

Te Tari Takawaenga Māori

Te Tari Takawaenga Māori (Māori student support) provides "learning mentors…support you with your studies, whānau spaces…Māori student support teams" (AUT University, n.d.c). Within Te Tari Takawaenga is the Tuākana Māori Peer Mentors. These mentors are senior Māori students who provide mentoring in a field of study and assist with academic skills.

Office of Pasifika Advancement

The Office of Pasifika Advancement lead out initiatives that support the advancement of Pasifika students enrolled at AUT which include:

- Provide dedicated support through case management, academic tutoring and data analysis to raise success rates for Pacific students in targeted papers
- Deliver a comprehensive mentoring and leadership programme aimed at high achieving Pacific students
- Implement study sessions, various workshops and mid-semester programmes to enhance the success of students.

(AUT, n.d.e.)

Other types of Māori and Pacific student support initiatives and mentoring programmes used in the Aotearoa New Zealand education system

Mentoring programme 1 - Māori and Pacific apprentices

For Māori to succeed in tertiary studies, the nurturement of Māori values and Māori identities must be acknowledged (Durie, 2001; Holland, 2012). This programme involved the mentoring of Māori and Pacific apprentices working in trades developed a project to monitor the impact mentoring has on these apprentices. The mentors had a good understanding of cultural values such as family and reciprocity, which led to success in breaking down attitudinal barriers between the mentor and mentee (Holland, 2012). For example, a lack of cultural capital at the place of study or work, where colonial and monocultural knowledge systems are firmly in place, devalues Māori and Pacific knowledge causing a loss in cultural values and identity. To successfully mentor Māori and Pacific students, the programme must include the emotional, cultural, and academic support network of mentors who share the same backgrounds as their mentees (Holland, 2013).

Mentoring Programme 2 - Iwi-based mentoring initiative for forest-based management education
Another example of a mentoring programme outlined by Pirini (2017) is based on kaupapa Māori principles and tribal educational aspirations for their children and the preservation of the transmission of intergenerational knowledge. Two components to this iwi-based programme involved creating introductory holiday programmes for younger students with their parents and implementing a peer mentoring programme in their schools (Pirini, 2017). The aim of the programme was focused on building capacity within the iwi to manage the resource and by assisting young people into a pathway to undertake forestry qualifications through the Forestry Schools at Lincoln University and the former Waiariki Institute of Technology (Pirini, 2017). Additionally, the programme supported students finishing school with science, technology, engineering and mathematics (STEM) skills through establishing holiday programmes (Pirini, 2017). These programmes were aimed at Year 8 – 13 students and provided fun interactive activities in robotics and chemistry (Pirini, 2017). High school students who participated in the holiday programme were then introduced to the peer mentoring programme; opportunities were provided for these same students to apply for scholarships through the Māori land trusts (Pirini, 2017). Lastly, the community was involved in promoting a career in Forestry Management and the importance of tino-rangatiratanga (self-determination) in developing the capabilities to manage tribal resources (Pirini, 2017).

The peer mentoring programme was set up first with students who would become beneficiaries and future owners in a rural area (Pirini, 2017) and therefore, an external service from outside the area was required for online tutoring (Pirini, 2017). Students travelled to Auckland to meet their tutors in person as part of building the tutoring relationship (Pirini, 2017). Students were expected to have one meeting for term's three and four; with regular communication being maintained (Pirini, 2017). Addressing obstacles noted by Pirini (2017) in establishing this pilot mentoring programme related to sourcing external support for establishing the programme, ensuring students had authentic experiences through visiting tutors in Auckland, networking with industry to fund components of the mentoring programme and designing resources for the mentoring programme.

Mentoring Programme 3 – Pasifika students in the School of Education and Social Sciences at Eastern Institute of Technology (Hawkes Bay)
Another mentoring programme worth exploring in supporting the academic success of Pacific students is offered in a small-scale research project established for Pasifika [sic] students in the School of Education and Social Sciences at Eastern Institute of Technology (EIT) (Mara & Marsters, 2009). This initiative focused on the provision of academic mentoring in the first year (Mara & Marsters, 2009). In Figure 2, Mara and Marsters (2009) identified that relationships between Pacific students and their lecturers was a fundamental element in the mentoring programme needed for improving academic achievement.

Figure 3

Mentor Relationship Diagram
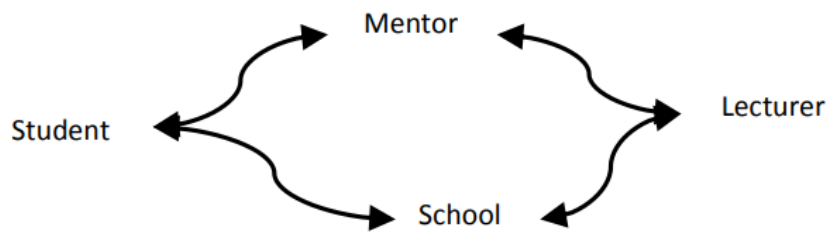
> *Note:* This model was produced by Mara and Marsters in 2009. The model summarises the quality of relationships between and amongst stakeholders that are present in the mentoring programme. From *Pasifika students: Supporting academic success through the provision of mentoring*, by Mara and Marsters (2009) p. 7.

Mara and Marsters (2009) provides a summary of the research:

> The findings are that success is determined by the quality and nature of: the Pasifika student mentor's role and tasks; the skills, experience and qualities of the Pasifika student mentor; the mentoring relationships established and maintained between the mentor, the students and the lecturers, and lastly, the need to include more culturally appropriate learning and teaching resources and tools for Pasifika students (p. 2).

These New Zealand based mentoring programmes provide insights into what works well in mentoring and support initiatives for Māori and Pacific students. This insight offers new ways in which mentoring could be better framed for Māori and Pacific students in the faculty.

AUT University (no date). *Uniprep.* https://aut.web.damdb.com/bp/#/folder/5592190/

Virtual learning

Virtual learning opportunities are now more abundant than ever, with many studies on distance learning centres developing at all levels across all types of education (Valencia et al., 2018). More universities have started online support and mentoring programmes to help meet the demands of new learners who might face several obstacles such as community commitments, personal and family commitments or living in remote parts of the country, meaning traditional learning methods, i.e., in-person, are not so readily available. Online resources for learning are more convenient for learners who face difficulties, as mentioned earlier, although the attrition rates are much more significant than traditional on-campus learning (Ludwig-Hardman & Dunlap 2003). Ludwig-Hardman and Dunlap (2003) further explain that the challenge for online support programmes is not recruitment but retaining students once they have begun the programme. Many problems with online learning support programmes is due to isolation, such as the lack of interaction with people and the satisfaction of the online programmes delivered. Instead, focusing on the cognitive functions of the online support programme will lead to a more successful programme.

Thorpe (2002) states that having one-to-one personalised interactions where the interaction is built on mutual and reciprocal respect for both parties lead to a support programme where students feel welcomed and valued. In terms of mentoring, Ludwig-Hardman and Dunlap (2003) observes the Western Governors University[4] successful approach using a scaffolding method for online mentoring. In the scaffolding mentoring programme, mentors are fed information obtained through the admission process, such as the intake interview, self-assessment, diagnostic pre-assessment, and learning orientation questionnaire, to develop an academic action plan to encourage learners. This helps the student mentors advise the students on selecting the right learning opportunities based on the learners' strengths and weaknesses. By providing the highest structure of support at the beginning of the learner's programme and providing online communities to combat the isolation learners might face, the end goal is to have the mentor offering feedback and encouragement where the learner has taken on more responsibility for their learning.

Online community study platforms provide alternative opportunities to bring together students across international borders. Many popular online communities exist that bring together people of all ethnicities and backgrounds, such as Facebook, which has over 2.6 billion monthly active users (Statista, n.d.). Although Facebook has many active users, there are many online communities that face problems such as a small number of users and low participation. Researcher Zhou (2011) identified social identity and group norms and significant effects on participation in online communities. An online community that explicitly keeps the users' goals, identity, and expectations can thrive in a virtual environment. For example, the online study community StudyTogether[5] is one of the largest online study communities. Group norms in this online community are based on studying and help eliminate procrastination. The social identity aspect comes through the many personalised options available for the user, such as a global leader board for study hours, personalised performance indicators and small rewards given to users who meet specific study goals.

---

4   Based in Millcreek Utah, Western Governor University is a private online university
5   StudyTogether is an online student community with a global reach. See https://www.studytogether.com

Proposed virtual platform for Māori and Pacific students in Te Ara Auaha, Faculty of Design & Creative Technologies at AUT University - 24/7 hour, every day, anywhere

As part of creating a Māori and Pacific student mentoring programme for the faculty requires having knowledge of the socio-cultural and historical factors that can either hinder and/or positively contribute towards Māori and Pacific students' success in tertiary education. Based on the lived experiences of the researchers who co-authored this literature review, informal discussions with Māori and Pacific postgraduate students in their roles as Māori student mentor or hāpai, with Māori and Pacific academics, creating a virtual online platform for Māori and Pacific students mentoring is highly recommended for the faculty. The platform would be similar in design and with functions used for the StudyTogether platform (Studytogether, n.d.).

This virtual platform would provide a space to create an online community that operates 24/7hrs of the day and is adapted from the StudyTogether platform. The point of difference would be that this platform is for Māori and Pacific students in Te Ara Auaha, Faculty of Design and Creative Technologies and will be embedded within Māori and Pacific ideologies, culture, values, and customary practices. There would also be the potential for the platform to be further developed and trialled within the four schools and Te Ipukarea Research Institute.

Figure 4
Collective virtual portals / rooms
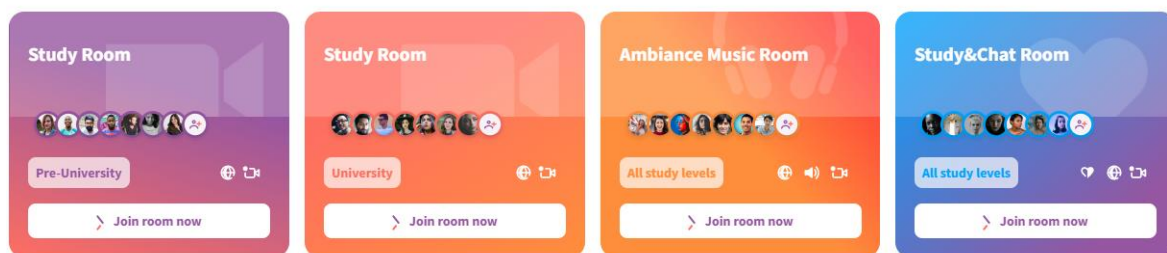
Note: The collective virtual portals above would be for each school and Te Ipukarea Research Institute. StudyTogether is a 24/7 virtual focus rooms with a community of students. Adapted from StudyTogether (Studytogether, n.d.).

Like Figure 4 above, this platform will host five virtual portals / rooms for each school in the faculty which include:

- The School of Future Environments;
- The School of Engineering, Computers, and Mathematical Sciences;
- The School of Art and Design;
- The School of Communication Studies; and
- Te Ipukarea Research Institute.

The platform will collectively link students to broader AUT student services, promote any events (cultural, academic, STEM), and connect to other AUT social media platforms (Instagram, Facebook, Twitter). Each of the virtual portals / rooms serve the same purpose to engage in a collaborative

environment with students who share similar interests and backgrounds to promote a positive learning environment.

Additionally, giving students the option to create an account with the platform can bring many innovative practices like reward systems. For example, Griffin et al. (2021) uses a credit reward system to help students when choosing their career-technical education pathways. Students were encouraged to think about the decision more through the reward system as choosing an academic path is an important decision for every student. A similar system can be applied to the virtual platform to engage students studying bridging courses, where their next step is to choose the degree of their choice. Crediting students for their undergraduate degree completion can give students more variety when choosing to go back and study. Similarly, the same service can be applied for students completing a capstone year, where a certain level of interaction from students is needed for the rewards. The researcher would envisage incorporating a reward feature as part of a student's individualised dashboard attached to the virtual platform (See Figure 5 below).

Figure 5

Example of personalised dashboard
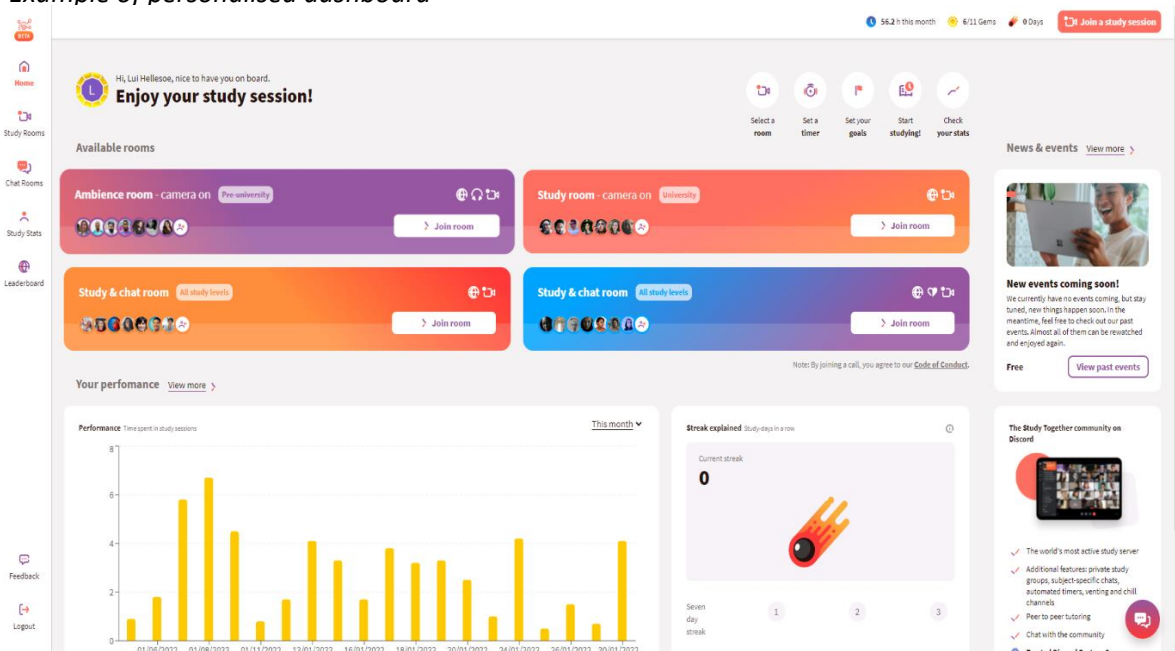
Note: Study Together is a global online student community. Adapted from study together (Studytogether, n.d.).

Figure 6

Personalised dashboard
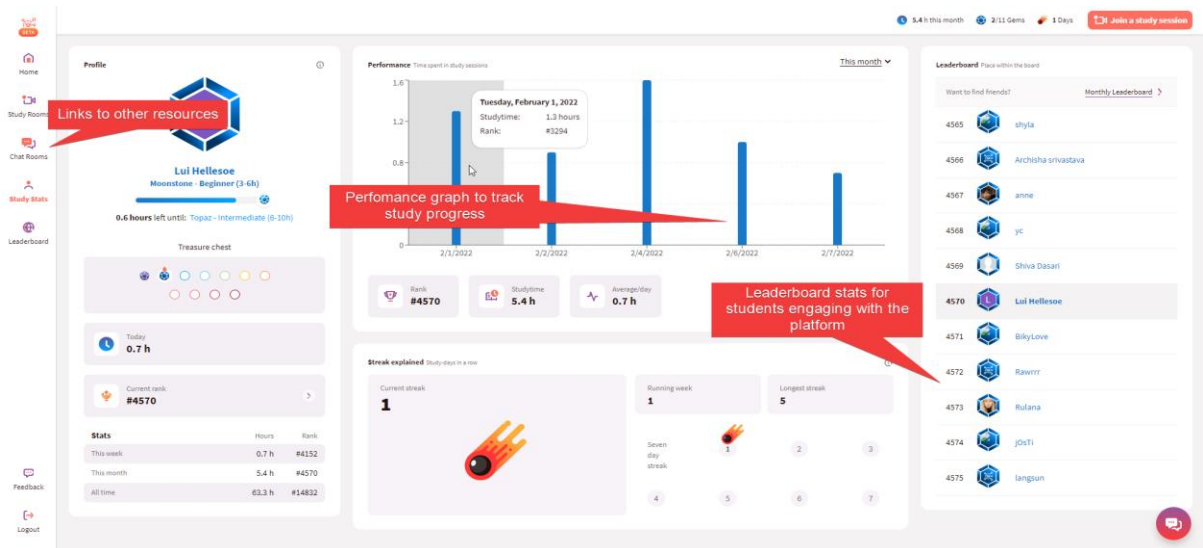
Note: Study Together is a global online student community. Adapted from study together (Studytogether, n.d.).

The virtual platform that the researcher proposes is unique, in that, it supports Māori and Pacific to collaborate anytime, anywhere. It is also a platform which can provide a space for online mentoring during a Covid-19 pandemic, foster online relationship building, and can create a journal file on students' academic, professional, and personal capabilities within the field of study they are pursuing.

The following suggestions could improve Te Ara Auaha, Faculty of Design and Creative Technologies ability to be a good Treaty partner when embedding Te Tiriti o Waitangi (Ka'ai-Mahuta, 2010) as the centre of organisational outcomes that help to advance Māori aspirations for tino rangatiratanga.

Appendix (2 & 3) highlight the online platform as a resource to promote Māori and Pacific student mentoring. Through peer-to-peer virtual rooms, students can interact in a social environment at their own pace. This can be seen in Figure 6 and 7 below.

Figure 7

Zoom based study/focus room
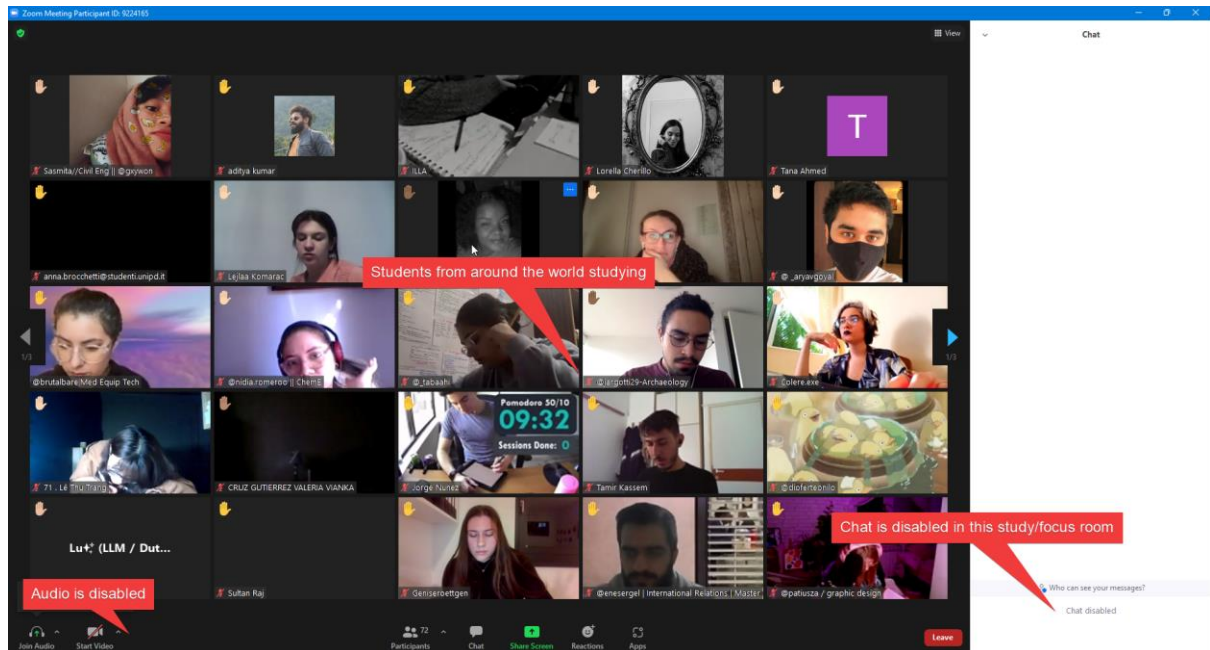
Note: StudyStream is a 24/7 virtual focus rooms with a community of students. Adapted from StudyStream, n.d.

For example, in Figure 6 and 7 above, a virtual room can be hosted in an online or local Internet server and could serve as:

- A study room for Māori and Pacific students to connect with each other while studying at a similar level in each school and with Te Ipukarea in the faculty.
- A study room for keyboard-to-text-only chats gives students who prefer chatroom / instant messaging communication their own space.

The virtual portal /room will provide students with different options to engage with each other. To help establish a sense of ownership for students, each room besides the keyboard-to-text room will have a camera on/off option. Although every room will have a feature that disables students from using any audio, only one keyboard-to-text chat room is needed where other sub-chatrooms can assist different student needs. Students are free to play any background sounds without disrupting other students in the virtual rooms giving them more freedom over their study needs. Reducing the interactions to only video and text chat creates a study environment, where quiet is often associated with suitable study spaces.

The online virtual platform provides ongoing support for students, and it gives a way to promote events, scholarships, and any helpful links. For example, AUT's social media platforms on Facebook and Instagram can be promoted as tiny links throughout the web pages. However, only a link to other web pages, gathering Māori and Pacific student's related information in one central hub gives those students a solid foundation to explore. By providing an onboarding message on the landing page for the platform, students can quickly assess what the platform is and how it supports learning.

Functions of the virtual platform

The essential functions that make up the virtual platform's core can be broken into different web pages for the website such as:

- Page 1: Landing page (See Figures 8 & 9 on p.27)
  - Interactive image.
  - Banner/event.
  - Social media links.
  - Join now buttons.

- Page 2: Study rooms (See Figure 7, on p. 25)
  - Virtual classrooms links.
  - Widget (small space to promote information) menu on the side with links to other pages.
  - Social media links.

- Page 3: Personal dashboard (See Figure 5, p. 23)
  - Space showing overall study stats (time spent studying).
  - Space showing today's study stats.
  - Space for a leader board, showing a ranking of each student's time spent studying with the platform.
  - Widget space on the side to link to other pages.
  - Performance graph showing daily/weekly/monthly/yearly study stats

- Page 4: FAQ ~ Contact us
  - Space to receive feedback about the platform.
  - Space to put any FAQs that students might have.

Figure 8

Landing page example
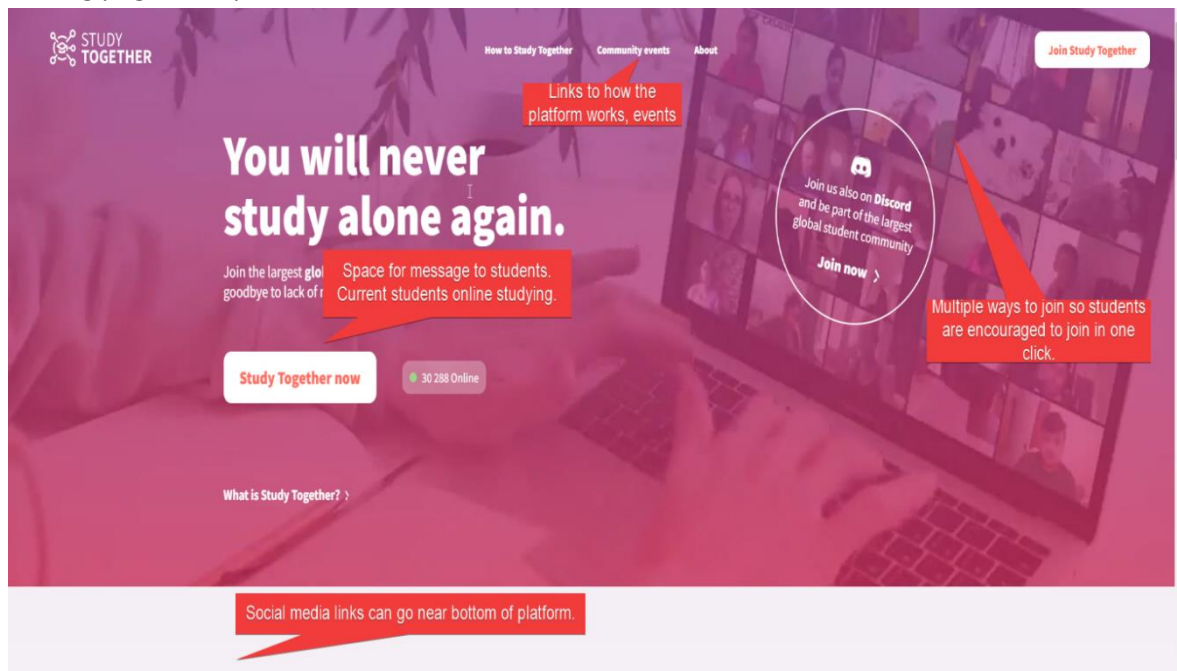
Note: Study Together is a global online student community. Adapted from study together (StudyTogether, n.d.).

Figure 9

Landing page example
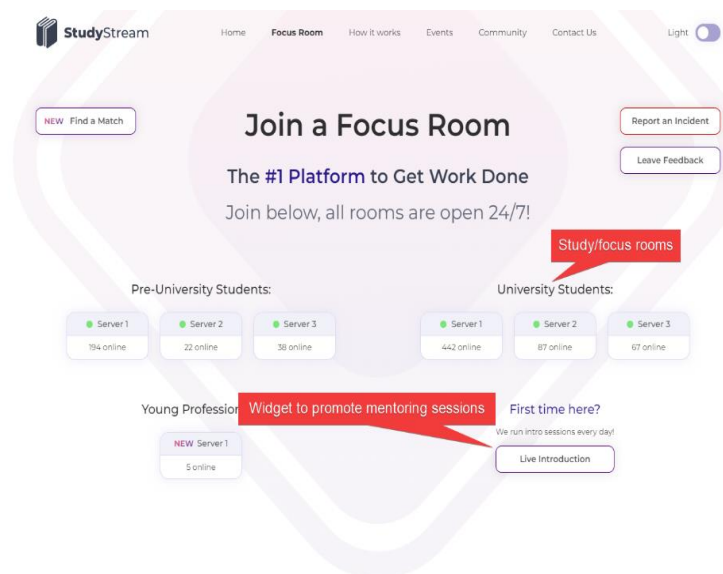
Note: Study Together is a global online student community. Adapted from study together (StudyTogether, n.d.).

Each page must have aspects of Māori and Pacific cultures embedded throughout the platform to promote cultural values as the foundation of the platforms design. Consideration must be given to embedding kaupapa Māori ideologies into the framing and setup of the virtual platform (see Appendix 2 for the virtual platform poster). If the pilot-trial is given the go ahead, then hui and

wānanga would need to be set up as part of a kaupapa Māori process of working with different stakeholders in the design of the virtual platform.

By translating kaupapa Māori principles into the virtual platform design, we can better shape the platform to fit students' needs. A collaboration between Rautaki Ltd and Ngā Pae o te Māramatanga led to the creation of the Rangahau website. This website details the application of kaupapa Māori principles in Kaupapa Māori research (Rangahau, n.d.):

- tino rangatiratanga (the self-determination principle)
- taonga tuku iho (the cultural aspirations principle)
- ako Māori (the culturally preferred pedagogy principle)
- kia piki ake i ngā raruraru o te kāinga (the socio-economic mediation principle)
- whānau (the extended family structure principle)
- kaupapa (the collective philosophy principle)
- Te Tiriti o Waitangi – The principle of the Treaty of Waitangi; and
- Āta – The principle of growing respectful relationships.

(Rangahau, n.d.)

These principles inform the praxis of kaupapa Māori theory to better Māori advancement in educational spaces. The tino rangatiratangas principle is discussed as sovereignty, autonomy, self-determination, and independence (Pihama et al., 2002). When applying tino rangatiratanga, it means a certain degree of responsibility is shared between the tertiary organisation who hosts the virtual platform and the students who will use the platform. This also could include having whānau, and Māori collectives' interests considered in the design and output of the virtual model. For example, tertiary education organisation must ensure that their Māori and Pacific students have a productive relationship with teaching staff, whānau and other Māori stakeholders (Māori support through kaumātua (elders). Whānau and kaumātua could be involved in a hui with platform designers and researchers in the creation of the values and practices for interacting on the platform, and possibly, in the evaluation of how effective the virtual mentoring platform has been towards Māori and Pacific students' experiences and success in their studies in the faculty.

Study rooms will not be monitored live for students using the platform, but there is an option to report any students who may not be abiding to AUT's internet policies and student codes of conduct. There will be an expectation of no bullying or shaming of people online. Here we would need to have a kaitiaki (a custodian), a system set up inside the virtual platform to warn students of following correct practices on the platform. Removing a figure who oversees students using the chatrooms gives students more control because everyone in the chatroom will share the same amount of responsibility for their learning, and misbehaving deter the individual from using the platform, not the collective. With more responsibility given back to students, the platform can help create autonomy, control, and self-determination.

The principle of taonga tuku iho refers to cultural aspiration where work is culturally relevant and appropriate (Kerr, 2012). Embedding this principle into the platform means following Māori cultural protocols, for example, allowing students to view the platform in both te reo Māori and English. Furthermore, implementing Māori cultural protocols can be started in the virtual platform but finished in a face-to-face meeting by promoting workshops, faculty related student events, and any

Māori and Pacific events within the faculty. To embed taonga tuku iho further, mātauranga Māori can be promoted by highlighting top-performing Māori and Pacific students in the platform with a quote that says who they are and what they plan to do with the knowledge they are learning from university. Alternatively, setting up regular meetings with Māori and Pacific alumni (undergraduate or postgraduate) who studied in each of the four schools or Te Ipukarea Research Institute, in the platform showcases the limitless learning potential and a step in the right direction for tertiary education success for everyone (Tertiary Education Commission, 2020, February 28).

The principle of ako Māori refers to culturally preferred pedagogy (Rangahau, n.d.). This principle would be embedded throughout the platform and is shown in the sense of community within the different study rooms, options for both virtual and face-to-face mentoring sessions, promotion of Māori and Pacific related events at AUT and other faculty student events that could influence Māori and Pacific success. Furthermore, the platform can host content to empower students in personal goal planning, academic goal planning, networking in the faculty, and interpersonal and intrapersonal skills needed for developing relationships through the faculty's core undergraduate paper, DIGD507: Mahitahi - Collaborative Practices and any mentoring services. Although challenging to implement, Māori spirituality can be embedded in spaces where students are loading into the study rooms, where a rotation of pop-up messages relating to Māori spirituality can be presented. Additionally, the Māori way of learning is collective, where challenges that can only be solved as a community can regularly be shared and learnt from within the collective online community.

The principle of kia piki ake i ngā raruraru o te kāinga refers to socio-economic meditation or rising above or overcoming problems (Keegan, 2012). This principle can also be embedded throughout the platform, where students are encouraged to join the platform for free, study more to earn potential rewards (e-vouchers, coffee vouchers, lunch dates with Māori academic staff) and provide the same resources available to Māori and Pacific students that they would see on campus. Furthermore, having the virtual platform as both an online website and a phone application means more Māori and Pacific students can access the virtual platform.

The principle of whānau refers to the extended family structure such as parents, grandparents, aunts, uncles, cousins, and other members (Mahuika, 2008), a common representation to include friends who may not have any kinship ties to other members of the community. Whānau and, by extension, whakawhanaungatanga (process of establishing relationships, relating well to others) can help drive a community based virtual platform for Māori and Pacific students to learn in a safe environment. Whakawhanaungatanga can be nurtured within the study rooms and mentoring sessions made available on the virtual platform (Rangihau, n.d.). Additionally, peer-to-peer learning is the core part of the virtual platform, as students are welcome to share their own experiences in any of the study rooms or share in a personal space with mentoring sessions.

The principle of kaupapa refers to the collective philosophy or guide (Rangihau, n.d.). This principle identifies the collective aspirations, visions, and purpose of the virtual platform. For example, the platform can serve as a community that collectively study undergraduate and postgraduate qualifications in related fields/subjects with a shared cultural background. To embed this principle into the virtual platform, mentors and teaching staff must be aware of Māori and Pacific cultural

values before using the platform. In turn, the mentors and teaching staff can then join the collective with more cultural awareness, aiding achieve community tied goals. Additionally, mentors and teaching staff can access the feedback and Frequently Ask Questions (FAQ) pages of the platform, serving as one of many channels for communication, where students can anonymously give feedback on the platform or any other concerns, they may not be comfortable sharing within the study rooms.

In addition to the six kaupapa Māori principles, the virtual platform can host the many ECMS [6]programming software applications students will use throughout their academic journey. Ideally, this component is initially accessed through the virtual platform but showcases the same tools available to students on-campus computers. Giving students access to programming software only made available in second or third-year studies shows a transformative approach in ECMS learning for Māori and Pacific students. It also serves as a gateway to growing respectful relationships with students and tertiary institutions, where early access demonstrates the tertiary education organisation's effort to support the underrepresented Māori and Pacific students in the ECMS field (Ruckstuhl et al., 2019).

---

[6]   ECMS refers to Engineering, Computers and Mathematical Sciences

Māori pedagogy

Māori pedagogy can be defined in varying ways. Smith (as cited in Pihama et al., 2004) suggests Māori pedagogy reflects a preferred style of learning by ākonga Māori (Māori student, learner). In Smith's seminal work he affirms how cultural tenets support the actioning of Māori pedagogy (Pihama et al., 2004). Another perspective on Māori pedagogy is described by Hemara (2000) as the ancient pedagogies of our tūpuna (ancestors), sharing synergies with current educational best practice with Māori learners and their whānau. Adding to this dimension in traditional times Māori believed that the learning process was reciprocal between the young and older members of whānau collectives (Hemara, 2000). Teaching and learning experiences were collaborative and dual reciprocity occurred between the elder (teacher) and student. In this space is where the growth of new learning occurs. Learning is considered a gradual process and from a Māori perspective is known as ako (Stucki, 2010).

Other ways Māori pedagogy is used to inform practice within education is applied in research supervision pedagogical models where a form of mentoring takes place between Māori and Pacific postgraduate students.

Mahitahi an Indigenous collaborative methodology

The Mahitahi model details the journey that a Māori or Pacific student takes from pre-entry to post-completion of their masters or doctoral qualification (Ka'ai et al., 2022). When Mahitahi is applied to educational statistics for Indigenous Māori and Pacific students, it posits and normalises teaching and learning practices founded on mātauranga Māori, encompassing epistemology, theories, pedagogies, customs, and practices. Mahitahi adopts Māori cultural concepts and values within the postgraduate supervision context used by Māori and Pacific academics and research supervisors in Te Ipukarea Research Institute, located in Te Ara Auaha, Faculty of Design and Creative Technologies at AUT (Ka'ai et al., 2022).

The Mahitahi model below (Figure 10) features "multi-level interrelated connections and elements that are central to Māori and Pacific postgraduate students' educational success and development of their research capabilities and skills required for working within their communities" (Ka'ai et al, 2022, p.14). Ka'ai et al (2022) notes, "the Mahitahi model is grounded firmly in te ao Māori; and there are twenty foundational pou (pillars) that underpin the model (pp. 15-16).

Figure 10

The Mahitahi Model

Note: Ka'ai developed the Mahitahi model to demonstrate the integration of Māori pedagogy and mātauranga Māori as a tool for postgraduate supervision in supporting Māori and Pacific postgraduate students to be a success in the academic world and when undertaking research in their own community. Adapted from *Te tātari i te kaupapa* by T. Ka'ai, 1995.

The application of Māori pedagogy and mahitahi (cooperative learning) can also be further applied to address the effects of Covid-19 on Māori and Pacific students using virtual mentoring platforms and technological tools.

Because of the Covid-19 pandemic, this has led to new opportunities for Māori and Pacific students to engage with their tertiary education organisation (TEOs). The traditional classroom environment has been swapped for an online one in most institutions across New Zealand to accommodate learners (AUT University, n.d.-a; University of Auckland, 2022, January 22). Platforms hosted through systems such as Blackboard provide virtual classrooms that lead to different but similar complications for Māori and Pacific learners who face non-teaching factors. For example, many study spaces are available on-campus for students; however, a convenient study space at home is unavailable for many Māori and Pacific learners (Van Wart et al., 2020). Additionally, the solutions for Māori and Pacific students who benefit from a strong teacher-student, student-student, and whānau are more challenging to embed into a virtual platform (Potts & Stebletsova, 2021). Effectively, the online platform can hinder Māori and Pacific students learning where maintaining a strong, positive, and genuineness for the relationship between teacher and learner only gets more complex in a virtual environment. To better accommodate Māori and Pacific learners, the online platform must be welcoming where students feel a sense of belonging in the virtual space, necessary for indigenous student learning in a Western institution (Carter et al., 2018).

The place of technology, cultural values, cultural practices, and knowledge systems in the development of Māori and Pacific student mentoring programmes

In the fast-paced technology field, advances have only bolstered indigenous principles such as tikanga Māori for Māori learning. The technology sector has shown it supports mentorship, with big tech companies like Google supporting the idea of mentorship with their own one-on-one mentoring and group mentoring programmes (Google, 2022). Offering more than one way of mentoring is more desirable for Māori, where group mentoring provides opportunities for behaviour modification influenced by whakapapa and tikanga tuku iho (customary law, tradition, lore, custom) (Hook et al., 2007). A mentorship programme must include support to make the mentee comfortable in their space to ensure the mentor and mentee feel comfortable enough to express their feelings and ideas (Pirini, 2017). Similarly, mentoring in New Zealand must meet diverse set of needs that learner groups have when engaging with them (Kensington-Miller & Ratima, 2013; Royal Society Te Apārangi, n. d.).

In Pacific culture, talanoa (an exchange where people communicate their issues, realities, and aspirations) defines the conversational space for mentoring. Simplifying the translation, talanoa is where an exchange of ideas or thinking occurs without judgment (Vaioleti, 2006). In mentoring, talanoa environments can build trust between a mentor and mentee where the conversations are confined and controlled to an educational aspect without fear of judgement. Formal or informal, talanoa conversations adopt similar Māori values where meetings are done face to face or kanohi ki te kanohi, as part of providing a vā (space between) to be Pacific (Hemi et al., 2022).

In Māori culture, tuakana (elder brother of a male; elder sister of a female) and teina (younger brother of a male; younger sister of a female) relationships define the concept of mentoring, which can transcribe into an older-younger relationship, younger-older relationship, peer-peer relationship and to less able relationship. According to the Royal Society Te Apārangi (n.d.), mentoring from a Pacific lens considers Pacific customs, cultural practices and values including:

- reciprocity (a relationship based on mutual exchange)
- Service (working for the benefit of others);
- Respect (holding others in high esteem and accepting them for who they are);
- Relationships (establishing and valuing interactions with others); and
- Family (valuing unity and sharing concern for others.

(p. 2)

This perspective is also shared by Cheu (2009) who affirms Pacific communities highly value education and mentoring frameworks that are rooted in Pacific cultures and values. Furthermore, Cheu's (2009) doctoral research provides various examples of Pacific models of education and wellbeing such as *The Tree of Opportunity*, the *Fonofale model of health* and the *Fa'afaletui model*. Additionally, Cheu (2009) acknowledges that the Fonofale and Fa'afaletu models' structure the different parts of the fonofale (house) that represent cultural elements important for Samoan people:

> For instance, the roof of the Fonofale represents the cultural values and beliefs that
> are the shelter for life, and the foundations are the family (nuclear and extended)

which is the basis for social organisation. The family is represented in the base of the house and supports the four posts which are the physical-biological wellbeing; the spiritual which includes Christianity or traditional spirituality; the mental, or the health of the mind; and lastly the 'other', which includes gender, sexual orientation, age and social class (p. 91).

Māori culture shares similar cultural and family values of reciprocity, service, respect, relationships, and family. An example is that tikanga Māori values of whanaungatanga (relationship, kinship, a sense of family connection), rangatiratanga (chieftainship, right to exercise authority), and mōhiotanga (knowledge, understanding) (Mead, 2003) align with the values observed by Pacific mentors who aimed to provide emotional, academic, and cultural support where the mentees feel more comfortable talking to their mentor about a problem than approaching their lecturer (Mara & Marsters, 2009). Like indigenous cultures seen in other parts of the world, Māori and Pacific mentoring use the same core cultural values and ways of being to guide their practices.

Technology as a pedagogical tool in mentoring programmes to support Māori and Pacific student retention and learner success in higher education

Technology can serve as a support system for students and teachers; however, technology does not solve all problems. When designed and used correctly, technology can support and enhance the quality of mentoring and learning. From the one of the co-authors personal lived experiences as a current Māori and Pacific postgraduate student in ECMS, pre-exposure and familiarisation to technology tools can benefit students enrolled in ECMS papers as it is an opportunity for students to familiarise themselves with the technological tools and techniques covered in their degrees while in the early stages of their academic journey.

Covid-19 has disrupted traditional Māori and Pacific mentoring methods; hence, technology-based mentoring schemes offer new ways and realistic alternatives for supporting and retaining students in higher learning (Ludwig-Hardman & Dunlap, 2003; Potts & Stebletsova 2021; Smailes & Fontainha 2011). Due to the phenomenal growth in technology over the last decade, virtual mentoring has taken a firm stance in higher education as an alternative resource to more traditional mentoring programmes for students. An example of this would be traditional–mentoring, specifically peer mentoring, which described an experienced student supporting a new student during their academic journey; helping to develop the students' understanding in a face-to-face setting. However, with technology, the space for face-to-face settings increases, giving more options for students and mentors to learn together using virtual platforms. By considering the technology that students may already be familiar with, such as Social Networking Sites (Facebook, Twitter, Discord), Virtual Learning Environments (Blackboard, Canvas) and Virtual worlds (Habbo, SecondLife), then the number of classroom options to develop a technology-base is limited by the virtual space available (Smailes & Fontainha 2011). Mentoring is further improved on virtual learning platforms when clear policies and procedures exist for the students (Kolek & Saunders, 2008). For Māori and Pacific students, the policies and procedures must adhere to the cultural needs of these students.

The use of educational technology in a tertiary teaching setting is not new. With advances in artificial intelligence (AI), new support services are available for educational platforms, such as chatbots. Chatbots are AI capable of holding a conversation in a question-answer setting through websites, messaging platforms and phone applications (Sandu & Gide, 2019). The use of chatbots to engage in

student learning, student development, and student feedback has become more popularised as the technological tools used to analyse the data collected are now capable of more profound insights (Natek & Zwilling, 2014). For example, Mendez et al. (2020) investigated the efficacy of chatbots for mentoring underrepresented minorities studying a doctoral degree in engineering related subjects. Based on the findings of this study, the students were satisfied with the chatbot's user interface and trustworthiness, but they had mixed feelings about using the chatbot in the future due to its lack of personalisation. Other important findings detailed participants shared collective concerns with locating a mentor who shared similar racial and cultural backgrounds, describing the critical need for this mentor who can help personally and professionally. If the use of chatbots is successful in mentoring Māori and Pacific students, the importance of contextualising, personalising, and identifying the distinct personal needs for these learners, where ideally the chatbot is built to follow a Māori framework of mentoring.

There is an opportunity for indigenous students underrepresented in the digital divide (Crump & McIlroy, 2003; Cullen, 2003) and marginalised population groups, who are underachieving as tertiary students to familiarise themselves with the technological tools and techniques covered in their degrees while studying. One of the co-authors, Hellesoe reflects on his own experience. At the time of this publication, he had completed a bachelor's degree in computer science and almost completed a Master of Computer Science. He proposes that by having a centralised location for all software tools, students will require in core ECMS papers could assist and help retain (Hellesoe, 2022, personal communication). For example, if potential students had a small sample of the types of tools available in their degrees, or if those who dropped out of higher learning were exposed to the most up-to-date software and technology that is hidden behind second- or third-year papers, they may be more inclined to consider the sort of technology they will want to deal with in their future careers while picking their research. Additionally, a centralised location would make locating tools for mentors looking for specific tools to aid in their discussions for mentees. Although this feat may be difficult to implement, the nature of technology means much interloping of software tools is taught, such as agile methodologies, a popular framework for developing technology products in the industry.

Mentoring software; mentoring apps; virtual mentoring technological tools

Technology is a valuable tool that can be used in education to support and enhance the quality of teaching and learning. There are numerous benefits of technology in education, including increased engagement with learning content and more frequent feedback on student progress. Technology has also provided opportunities for students and teachers to work collaboratively on course material through online discussions. For example, the online mentoring space e-Belonging (Rawlings & Wilson, 2013), piloted at the Open Polytechnic Kuratini Tuwhera, was developed to improve the engagement, retention, and success of Māori students. Developed for Māori, by Māori, and with Māori, the online platform serves as a virtual marae (courtyard – the open area in front of the wharenui, where formal greetings and discussions take place) for peer mentoring to support distance learners with the intent of creating an online community where Māori students could connect and establish relationships with other Māori students from the Open Polytechnic. Using technology to create an online space where Māori learners can find a sense of belonging, a sense of whanaungatanga that gives way to potentially reaching more Māori and Pacific students where a learner's culture is embedded into the platform is worthy of serious consideration.

Technology and culture are a circle of influence. Technology systems that meet high technical standards are still susceptible to resistance from users due to a lack of cultural fit. As new technologies are introduced into society, many are fostered by Western designers for Western audiences (Gallivan & Srite, 2005). Although the technology sector is made up of different cultures where most successful companies around the world purposefully diversify their workforce to compete in today's business environments (Elmuti, 2001) and cultural diversity has been shown to bring forth innovation within the technology sector (Stirling, 2007; Suzuki & Kodama, 2004), many systems do not account for the cultural needs of their users. Māori and Pacific students entering the technology sector represent a small part of the technology cultural space. For example, there is an ongoing need to influence more Māori and Pacific students into ECMS degrees earlier to help them work in the IT sector. According to Leggon and Gaines (2017), the Āwhina outreach programme successfully used the mentoring of Māori and Pacific students to engage with the public to help them learn more about ECMS related subjects by exposing potential students to the field of study as early as possible.

The first STEM centre was created at Auckland University of Technology in 2013. The initiative, known as STEM-TEC, is New Zealand's first Science, Technology, Engineering and Mathematics Centre at a tertiary level. One of the centre's main objectives is "…to attract more students to study STEM subjects from…traditionally under-represented (Māori, Pacific, women)" (Stemtec - AUT, n.d.). The focus of STEM-TEC is to improve the entrepreneurial skills of students, in particular Māori students, to help these students engage in more STEM-related pathways by engaging with Māori students (Stemtec – AUT, n.d.). STEM-TEC's objective to attract more Māori and Pacific students is worthy of support, however, it is not clearly outlined how this goal is to be achieved and if the centre has considered Indigenous knowledge systems, values, and cultural practices (by way of mātauranga Māori and Māori ideologies) within its functioning as an educational centre. There is a potential opportunity here to build partnerships with Māori in evaluating the effectiveness of the centre in enabling learner success for Māori and Pacific students. Therefore, if the faculty were to eliminate barriers and support the creation of a Māori and Pacific student mentoring framework, it would be beneficial to all stakeholders of the faculty and AUT in the future. Hence, a virtual platform that can exist on web pages and phone apps is an opportunity to create educational support services for students to gather and share information resulting in improved outcomes (Gregg et al., 2017; Montero-Fleta & Perez-Sabater, 2014), is possibly, something worth considering in Te Ara Auaha, Faculty of Design and Creative Technologies.

Conclusion

Using social media to enhance the peer mentoring experience can be embedded within a virtual student platform and mentoring programme. Mentoring programmes have been introduced by educational institutions to improve the retention, participation and completion rates of Māori and Pacific students which also helps to grow successful graduates. Diversifying the use of technology and embedding cultural perspectives and ideologies into student mentoring programmes, will help to bridge the achievement gap, and begin to represent the diverse cultures and identities of both Māori and Pacific students. This form of inclusion and diversification with technology, can only help to improve outcomes for Māori and Pacific students and ensure that the economy and society can flourish in Aotearoa New Zealand.

Mentoring is beneficial to all involved and is no longer limited to traditional settings thanks to technological advancements. Many virtual services are now used by students as study spaces, forming online study communities that serve as virtual study hubs, a benefit for many students who enjoy social environments. Providing a cultural space, through an online study community for Māori and Pacific students across the four schools and Te Ipukarea Research Institute, located in the Te Ara Auaha, Faculty of Design and Creative Technologies is indeed possible. As part of the design process, it would be worthwhile to consider using reverse student mentoring in addressing the problem of student retention, increasing participation and through a Mahitahi approach, strategising possible recommendations collaboratively with the senior leadership team of the faculty.

Other factors to ensure the virtual platform is effective would be to have sufficient resourcing in terms of building the platform and seeking skilled individuals to help design and create the virtual platform. Being the first of its kind, the faculty's virtual online platform can possibly support transforming educational achievement and outcomes for both Māori and Pacific students. Therefore, it is critical that the virtual platform meets the needs and expectations of Māori and Pacific students and their communities as part of creating the systemic change and reach needed within and across the four schools and Te Ipukarea Research Institute located in the faculty.

References

Abraham, H. (2022). *The dual journey of navigating the 'awa of higher education' by a Māori doctoral candidate at Auckland University of Technology*. [Unpublished manuscript]. Te Ipukarea Research Institute, Auckland University of Technology.

Abraham, H. (2021). *Iti noa ana, he pito mata: A critical analysis of educational success through a Māori lens and two case studies of whānau within Ngāti Awa and Ngāti Tūwharetoa* [Doctoral thesis, Auckland University of Technology]. Tuwhera. https://openrepository.aut.ac.nz/handle/10292/14445

Abraham-O'leary, H. (2015). *Leading learning for Māori students: The challenges of leadership for teaching principals in small rural primary schools* [Master's thesis, Unitec Institute of Technology]. Unitec Research Bank. https://hdl.handle.net/10652/3260

Adner, R., & Snow, D. (2010). Old technology responses to new technology threats: demand heterogeneity and technology retreats. *Industrial and Corporate Change, 19(5),* 1655-1675. https://doi.org/10.1093/icc/dtq046

Amunsden, D. (2019). Student voice and agency for indigenous Māori students in higher education transitions. *Australian Journal of Adult Learning, 59(3)*, 405-434. https://doi.org/10.1080/13562517.2017.1379485

Andrade, D. A., Techatassanasoontorn, A. A., Sinh, H., & Staniland, N. (2021). Indigenous cultural representation and re-affirmation: The case of Māori IT professionals. *Information Systems Journal, 31(6)*, 803-837. https://doi.org/10.1111/isj.12331

AUT University. (n.d.-a). *Māori Undergraduate students 2021* [Unpublished raw data]. Auckland University of Technology.

AUT University. (n.d.-b). *COVID-19 (Coronavirus). Updates - AUT*. Auckland University of Technology. https://www.aut.ac.nz/covid-19-coronavirus-updates

Auckland University of Technology. (n.d.-c). *Te Tari Takawaenga Māori - Māori student support*. https://student.aut.ac.nz/support-services/te-tari-takawaenga-maori-student-support

Auckland University of Technology. (n.d.-d). *Student hub services, hours and locations*. https://student.aut.ac.nz/support-services/student-hub-services-and-support-on-campus/Student-Hub-opening-hours-and-locations

AUT. (n.d.-e). *The Office of Pacific Advancement*. https://www.aut.ac/nz/about/pacific/the-office-of-pacific-advancement

Berryman, M., & Eley, E. (2017). Succeeding as Māori: Māori students' views on our Stepping Up to the Ka Hikitia Challenge. *New Zealand Journal of Educational Studies*, 52(1), 93–107. https://doi.org/10.1007/s40841-017-0076-1.

Berryman, M., Eley, E., & Copeland, D. (2017). Listening and learning from Rangatahi Māori: The voices of Māori youth. *Critical Questions in Education, 8(4),* 476-494.

Bishop, R. (2003). Changing power relations in education: Kaupapa Māori messages for mainstream education in Aotearoa/New Zealand [1]. *Comparative Education*, *39*(2), 221–238. https://doi.org/10.1080/03050060302555

Briscoe, G. (2014). Digital innovation: The hackathon phenomenon.

Brown, D., & Nicholas, G. (2012). Protecting indigenous cultural property in the age of digital democracy: Institutional and communal responses to Canadian First Nations and Māori heritage concerns. *Journal of Material Culture*, *17*(3), 307-324. https://doi.org/10.1177%2F1359183512454065

Carter, J., Hollinsworth, D., Raciti, M., & Gibley, K. (2018). Academic 'place-making': fostering attachment, belonging and identity for indigenous students in Australian universities. *Teaching in Higher Education, 23(2)*, 243-260. *https://doi.org/10.1080/13562517.2017.1379485*

Centre for Higher Education Practice. (2022). *What is mentoring?* The University of Southampton. https://www.southampton.ac.uk/chep/mentoring/what-is-mentoring

Chauvel, F., & Rean, J. (2012). *Doing better for Māori in tertiary settings: Review of the literature*. The Tertiary Education Commission. https://thehub.swa.govt.nz/assets/documents/TEC-Doing-Better-For-Maori.pdf

Cheu, H. (2009). *Mentoring for leadership in Pacific education* [Doctoral thesis, Victoria University of Wellington]. http://hdl.handle.net/10063/1103

Chng, H. H., & Kit, A. S. S. (2012). Mentorship in teacher-training: A preliminary review of a professional development programme for tertiary teachers in Singapore. *Teacher Development in Higher Education*, 82-96. https://doi.org/10.4324/9780203096826

Chu,C., Abella, I., & Paurini, S. (2013). *Research report-Educational practices that benefit Pacific learners in tertiary education*. Ako Aotearoa-National Centre for Tertiary Teaching Excellence. https://ako.ac.nz/assets/Knowledge-centre/NPF-10-001A-Pasifika-Learners-and-Success-in-Tertiary-Education/RESEARCH-REPORT-Educational-Practices-that-Benefit-Pacific-Learners-in-Tertiary-Education.pdf

Cortina, K. S., Arel, S., & Smith-Darden, J. P. (2017). School Belonging in Different Cultures: The Effects of Individualism and Power Distance. *Frontiers in education*, *2*. https://doi.org/10.3389/feduc.2017.00056

Crump, B., & McIlroy, A. (2003). The digital divide: Why the-don't-want-too won't compute: Lessons from a New Zealand ICT project. *First Monday*, *8* (12). https://doi.org/10.5210/fm.v8i12.1106

Cullen, R. (2003). The digital divide: a global and national call to action. *The Electronic Library*, *21*(3), 247–257. https://doi.org/10.1108/02640470310480506

Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of educational technology systems, 49(1),* 5-22. https://doi.org/10.1177%2F0047239520934018

Doerr, N. M. (2009). Laughing at Mistakes: Language Politics, Counter-Hegemonic Actions, and Bilingual Education in Aotearoa/New Zealand. *Journal of Language, Identity & Education, 8*(2/3), 124–143.

Duran, E. (2006). Healing the soul wound: Counselling with American Indians and other native peoples. ProQuest Ebook Central. https://ebookcentral.proquest.com

Durie, M. (2021, June 18). Mauri Ora. The metrics of flourishing. (Compass Seminars New Zealand). *Mauri Ora. The metrics of flourishing* (Symposium), Auckland, New Zealand.

Durie, M. (2001). *Australian and New Zealand Boards and Council Conference: Cultural competence and medical practice in New Zealand.* School of Māori Studies, Massey University. *http://www.equinetrust.org.nz/massey/fms/Te%20Mata%20O%20Te%20Tau/Publications%20-%20Mason/M%20Durie%20Cultural%20competence%20and%20medical%20practice%20in%20New%20Zealand.pdf*

Elmuti, D. (2001). Preliminary analysis of the relationship between cultural diversity and technology in corporate America. *Equal Opportunities International, 20(8),* 1-16. https://doi.org/10.1108/02610150110786642

Fitzpatrick, K. (2011). Trapped in the physical: Māori and Pasifika achievement in HPE. *Asia-Pacific Journal of Health, Sport and Physical Education*, *2*(3-4), 35-51. https://doi.org/10.1080/18377122.2011.9730358

Florida, R., & Gates, G. (2002). Technology and Tolerance: Diversity and High-Tech Growth. *The Brookings Review*, *20*(1), 32. https://doi.org/10.2307/20081019

Foster, I., Kesselman, C., & Tuecke, S. (2001). The anatomy of the Grid: Enabling scalable virtual organisations. *The International Journal of High-Performance Computing Applications, 15(3),* 200-222. https://doi.org/10.1177%2F109434200101500302

Gallivan, M., & Srite, M. (2005). Information technology and culture: Identifying fragmentary and holistic perspectives of culture. *Information and Organization*, *15*(4), 295–338. https://doi.org/10.1016/j.infoandorg.2005.02.005

Gerritsen, J. (2021, October 10). Tertiary institutions given 10 years to end minority pass rate disparity. *RNZ.* https://www.rnz.co.nz/news/national/453303/tertiary-institutions-given-10-years-to-end-minority-pass-rate-disparity

Gibson, J. (2002). The digital divide in New Zealand: The position of Māori and Pacific peoples. *He Puna Kōrero: Journal of Māori and Pacific Development*, *3*(2), 90-96.

Gloria, A. M., & Robinson Kurpius, S. E. (2001). Influences of self-beliefs, social support, and comfort in the university environment on the academic non-persistence decisions of American Indian undergraduates. *Cultural Diversity and Ethnic Minority Psychology*, *7*(1), 88. https://psycnet.apa.org/doi/10.1037/1099-9809.7.1.88G

Gómez-Zermeño, M. G., & Franco-Gutiérrez, H. (2018). The use of educational platforms as teaching resources in mathematics. *JOTSE: Journal of Technology and Science Education, 8(1),* 63-71. http://dx.doi.org/10.3926/jotse.337

Google. (2022). *Programs – Build your future with Google.* https://buildyourfuture.withgoogle.com/programs/

Gray, N. (2021). *Privileging Mātauranga Māori in nursing education: Experiences of Māori student nurses learning within an indigenous university.* [Doctoral thesis The University of Auckland]. The University of Auckland Figshare. https://auckland.figshare.com/articles/thesis/Dissertation2020NadineGray_pdf/15121350

Gregg, N., Galyardt, A., Wolfe, G., Moon, N., & Todd, R. (2017). Virtual mentoring and persistence in STEM for students with disabilities. *Career Development and Transition for Exceptional Individuals*, *40*(4), 205-214. http://doi.org/10.1177/2165143416651717

Griffin, S., Klempin, S. C., & Jenkins, P. D. (2021). *Using Guided Pathways to Build Cross-Sector Pathways Partnerships*. Teachers College, Columbia University. https://doi.org/10.7916/a3bn-w331

Hemara, W. (2000). *Māori pedagogies: A view of the literature*. New Zealand Council for Educational Research.

Hemi, K. V., Bulisala, S. N., Aporosa, S., & Fa'avae, D. T. M. (2021). Imua: reflections on imua, talanoa-vā and leadership in the ongoing strategic journey of a New Zealand university. *Waikato Journal of Education, 26(Special Issue),* 11-34.

Hill, R. (2017). Level 2 Māori Medium Programmes: What are the Perceptions of Parents and Students on this Form of Education? *New Zealand Journal of Educational Studies, 52(*2), 301-313. https://doi.org/10.1007/s40841-017-0088-x

Hohepa, M. (2010). Doctoring our own: Confessions of a Māori doctoral supervisor. In J. Jesson, V.M. Carpenter, M. McLean, M. Stephenson & Airini (Eds.), *University Teaching Reconsidered: Justice,*

Practice,   Inquiry.   Dunmore   Publishing   Limited. https://researchcommons.waikato.ac.nz/handle/10289/4840

Holland, C. (2012). Cultural/community mentoring with Māori and Pacific electrical apprentices. *Literacy   and   Numeracy   Studies*, *20*(2),   37-48. https://doi.org/10.5130/lns.v20i2.3084

Holland, C. (2013). *Māori and Pasifika apprentices' and relational mentoring: A success story for the skills   organisation*.   *AKO   Aotearoa,   RHPF   Central,   Wellington,   New   Zealand*. https://ako.ac.nz/assets/Uploads/Summary-Report-Maori-and-Pasifika-Apprentices-and-Relational-Mentoring.pdf

Hook, G. R. (2008). Māori students in science: hope for the future. *MAI Review. 1*:11.

Hook, G. R. (2006). A future for Māori education Part I: The dissociation of culture and education. *Mai Review*, *1*(2), 1-14.

Hook, G. R., Waaka, T., & Raumati, L. P. (2007). Mentoring Māori within a Pākehā framework. *MAI Review LW*, *1*(3), 1-13.

Ka'ai, T. (1995). *Te tātari i te kaupapa* [unpublished doctoral thesis, University of Waikato].

Ka'ai, T., Smith, T., Abraham, H., McRae-Tarei, J., Taituha, G., & Te Ratana, R. (2022). *Indigenous collaborative methodology (Mahitahi) and the academy.* [Unpublished manuscript]. Te Ipukarea Research Institute, Auckland University of Technology.

Ka'ai-Mahuta, R. (2011). The impact of colonisation on *te reo Māori*: A critical review of the State education system. Te Kaharoa – *The e-journal of Indigenous Pacific issues*, *4*(1), 195-225. https://ojs-aut-ac-nz.ezproxy.aut.ac.nz/te-kaharoa/index.php/tekaharoa/article/view/117/108

Ka'ai-Mahuta, R. (2010). *He kupu tuko iho mō tēnei reanga: A critical analysis of waiata and haka as commentaries and archives of Māori political history* [Doctoral thesis, Auckland University of Technology]. Tuwhera. https://openrepository.aut.ac.nz/handle/10292/1023

Kanawa, W. T. (2014, September 18). *New STEM-TEC Centre to improve students' entrepreneurial skills*. Māori Television. https://www.teaomaori.news/new-stem-tec-centre-improve-students-entrepreneurial-skills

Keegan, P. J. (2012). Making sense of kaupapa Māori: A linguistic point of view. *New Zealand Journal of   Educational   Studies, 47(2),   74-84. search.informit.org/doi/10.3316/informit.447324297010483

Kensington-Miller, B. (2010). Peer mentoring. *MAI Review 2, Career Workshop 4*, 1-3.

Kensington-Miller, B., & Ratima, M. (2015). Māori in partnership: A peer mentoring model for tertiary indigenous   staff   in   New   Zealand. *Race   ethnicity   and   education*, *18*(6),   813-833. https://doi.org/10.1080/13613324.2013.831824

Kerr, S. (2012). Kaupapa Māori theory-based evaluation. *Evaluation Journal of Australasia, 12(1),* 6-18. https://doi.org/10.1177%2F1035719X1201200102

Knouse, S. (2001). Virtual mentors: Mentoring on the internet. *Journal of Employment Counselling, 38*, p. 162-169.

Kolek, E. A., & Saunders, D. (2008). Online disclosure: An empirical examination of undergraduate Facebook profiles. *NASPA Journal, 45(1),* 1-25. https://doi.org/10.2202/1949-6605.1905

Leggon, C., & Gaines, M. (2017). *STEM and social justice: Teaching and learning in diverse settings.* Springer International*. https://doi.org/ 10.1007/978-3-319-56297-1

Lewis, J. L., Menzies, H., Nájera, E. I., & Page, R. N. (2009). Rethinking trends in minority participation in the sciences. *Science Education*, *93*(6), 961–977. https://doi.org/10.1002/sce.20338

Lilley, S. (2018). Interdisciplinarity and Indigenous studies: A Māori perspective. *Journal of the Australian Library and Information Association*, *67*(3), 246–255. https://doi.org/10.1080/24750158.2018.1497348

Lincoln University. (n.d.-a). *Te Manutaki*. https://www.lincoln.ac.nz/maori-ki-aoraki/te-manutaki/

Lincoln University. (n.d.-b). *Pasifika ki Aoraki*. https://www.lincoln.ac.nz/life-at-lincoln/pasifika/

Ludwig-Hardman, S., & Dunlap, J.C. (2003). Learner support services for online students: Scaffolding for success. *International Review of Research in Open and Distance Learning, 4(1).* http://www.irrodl.org/

Mahuika, R. (2008). Kaupapa Māori theory is critical and anti-colonial. *MAI review*, *3*(4), 1-16. https://www.researchgate.net/publication/26569994

Māori Undergraduate students 2021 [Unpublished raw data]. Auckland University of Technology.

Mara, D., & Marsters, M. (2009). *Pasifika students: supporting academic success through the provision of mentoring*. Eastern Institute of Technology. https://ako.ac.nz/assets/Knowledge-centre/RHPF-c24-supporting-Pasifika-Student-success-through-mentoring/RESEARCH-REPORT-Supporting-Pasifika-Students-Academic-Success-through-Mentoring.pdf

Marginson, S., Tytler, R., Freeman, B., & Roberts, K. (2013). *STEM: Country comparisons: international comparisons of science, technology, engineering, and mathematics (STEM) education* [Final report]. Australian Council of Learned Academies. http://hdl.handle.net/10536/DRO/DU:30059041

Massey University. (n.d.). *He aha Te Rau Puawai-About Te Rau Puawai*. https://www.massey.ac.nz/student-life/m%C4%81ori-at-massey/he-ringa-%C4%81whina-tauira-m%C4%81ori/te-rau-puawai-m%C4%81ori-mental-health-workforce-development-programme/about-te-rau-puawai/

Matapo, J. (2019). *The key to understanding Pasifika education*. Newsroom. https://www.newsroom.co.nz/2019/02/25/461065/pacific-education

Matheson, D. (2007). The interpretative resources of Aotearoa New Zealand journalists reporting on Māori. *NZJMS, 10*(2), 91-105. https://ir.canterbury.ac.nz/handle/10092/1564

Mayeda, D. T., Keil, M., Dutton, H. D., & 'Ofamo 'oni, I. (2014). You've gotta set a precedent: Māori and Pacific voices on student success in higher education. *AlterNative,10*(2), 165- 179. https://doi.org/10.1177/117718011401000206

McAllister, T.G., Kidman, J., Rowley, O., & Theodore, R. F. (2019). Why isn't my professor Māori? A snapshot of the academic workforce in New Zealand universities. *MAI Journal,8*(2), 236-249. https://doi.org/10.20507/MAIJournal.2019.8.2.10

McKinley, E., & Hoskins, T. (2011). Māori education and achievement. In T. McIntosh & M Mulholland (Ed.), *Māori and social issues* (pp.49-65).

McRae-Tarei, J. (2021). *Te mana o te kāhui kairaranga: Mai i te tīmatanga* (Doctoral thesis, Auckland University of Technology). http://hdl.handle.net/10292/14446

Mead, H. M. (2003). Mātauranga Māori: Knowledge. *Tikanga Māori: Living by Māori values. Wellington, New Zealand: Huia Publishers*, 305-321.

Meehan, L., Pacheco, G., & Pushon, Z. (2017). Explaining ethnic disparities in bachelor's qualifications: participation, retention, and completion in NZ. *New Zealand Productivity Commission Working Paper 2017, 1.*

Mendez, S., Johanson, K., Martin Conley, V., Gosha, K., A Mack, N., Haynes, C., & A Gerhardt, R. (2020). Chatbots: A Tool to Supplement the Future Faculty Mentoring of Doctoral Engineering Students. *International Journal of Doctoral Studies*, *15*, 373-392. https://doi.org/10.28945/4579

Milne, B. A. (2013). *Colouring in the white spaces: Reclaiming cultural identity in   whitestream schools* [Doctoral thesis, University of Waikato]. University of Waikato Research Commons. https://researchcommons.waikato.ac.nz/handle/10289/7868

Ministry of Education. (2021, November 30). The Action plan for Pacific education 2020-2030. https://www.education.govt.nz/our-work/overall-strategies-and-policies/action-plan-for-pacific-education-2020-2030/#sh-pacific%20education

Ministry of Education. (2021, September 20). *Ka Hikitia-Timeline*. https://www.education.govt.nz/our-work/overall-strategies-and-policies/ka-hikitia-ka-hapaitia/ka-hikitia-history/ka-hikitia-timeline/

Ministry of Education. (2021, July 16). New code of practice for the pastoral care of tertiary and international learners. https://www.education.govt.nz/news/new-code-of-practice-for-the-pastoral-care-of-tertiary-and-international-learners/

Ministry of Education. (2020, November 13). The statement of National Education and Learning Priorities (NELP) and Tertiary Education Strategy (TES). https://assets.education.govt.nz/public/Documents/NELP-TES-documents/FULL-TES-2020.pdf

Ministry of Education. (2013). *Ka Hikitia - Accelerating success 2013 - 2017*. https://www.education.govt.nz/assets/Documents/Ministry/Strategies-and-policies/Ka-Hikitia/KaHikitiaAcceleratingSuccessEnglish.pdf

Ministry of Education. (n.d.-a). *Māori Education – Briefing to the Incoming Minister*. Ministry of Education. https://www.education.govt.nz/assets/Documents/Ministry/Publications/Briefings-to-Incoming-Ministers/3-1093092-Annex-1-Maori-Education-BIM-english-REDACTED.pdf

Ministry of Education. (n.d.-b). *Ka Hikitia: Actions for Tertiary. Supporting resources for tertiary*. Ministry of education. https://assets.education.govt.nz/public/Uploads/Ka-Hikitia-supporting-resources-Tertiary.pdf

Ministry of Education. (n.d.-c). *Ka Hikitia – Ka Hāpatia*. https://www.education.govt.nz/our-work/overall-strategies-and-policies/ka-hikitia-ka-hapaitia/

Ministry of Education. (n.d.-d). *Ka Hikitia – Ka Hāpatia: The Māori education strategy* https://www.education.govt.nz/our-work/overall-strategies-and-policies/ka-hikitia-ka-hapaitia/ka-hikitia-ka-hapaitia-the-maori-education-strategy/

Ministry of Health (2021, October 10). *Education and training*. https://www.health.govt.nz/our-work/health-workforce/education-and-training

Montero-Fleta, B., & Pérez-Sabater, C. (2014). Guiding in tertiary education: A case study on social networking and e-learning platforms. *Procedia-Social and Behavioral Sciences*, *159*, 410-414. https://doi.org/10.1016/j.sbspro.2014.12.398

Naepi, S., McAllister, T. G., Thomsen, P., Leenen-Young, M., Walker, L. A., McAllister, A L., Theodore, R., Kidman, J., & Suaalii, T. (2019). The Pakaru' Pipeline': Māori and Pasifika pathways within the academy. *New Zealand Annual Review of Education*, *24,* 142-159. https://doi.org/10.26686/nzaroe.v24i0.6338

Natek, S., & Zwilling, M. (2014). Student data mining solution–knowledge management system related to higher education institutions. *Expert systems with applications, 41(14),* 6400-6407. https://doi.org/10.1016/j.eswa.2014.04.024

New Zealand Qualifications Authority. (2019). *Annual report on NCEA and New Zealand Scholarship data and statistics (2018)*. https://www.nzqa.govt.nz/studying-in-new-zealand/secondary-school-and-ncea/find-information-about-a-school/secondary-school-statistics/#heading2-1

Parker, B. (2003). Māori access to information technology. *The Electronic Library, 21(5),* 456-460. https://doi.org/10.1108/02640470310499830

Pihama, L., Smith, K., Taki, M., & Lee, J. (2004). *A literature review on Kaupapa Maori and Maori education pedagogy.* http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.620.3293&rep=rep1&type=pdf

Pihama, L., Cram, F., & Walker, S. (2002). Creating methodological space: A literature review of Kaupapa Maori research. *Canadian Journal of Native Education, 26(1),* 30-43.

Pihama, L., Reynolds, P., Smith, C., Reid, J., Smith, L. T., & Te Nana, R. (2014). Positioning historical trauma theory within Aotearoa New Zealand. *AlterNative: An International Journal of Indigenous Peoples, 10*(3), 248-262.

Pihama, L., Morgan, J., Smith, L. Tiakiwai, S. J., & Pihama, J. (2019). MAI Te Kupenga: Supporting Māori and Indigenous doctoral scholars within higher education. *AlterNative: An International Journal of Indigenous Peoples, 15*(1), 52-61. https://doi.org/10.1177/1177180119828065

Pirini, J. (2017). *Peer tutoring : A training and facilitation guide*. NZCER Press.

Pleschová, G., & McAlpine, L. (2015). Enhancing university teaching and learning through mentoring: A systematic review of the literature. *International journal of mentoring and coaching in education*, *4(2),* 107-125. https://doi.org/10.1108/IJMCE-06-2014-0020

Potter, H., & Cooper, L. (2016). *Project whitestreaming: A report on the generalising of Māori specialist staff positions in the tertiary sector*. Retrieved from http://www.communityresearch.org.nz/research/project-whitestreaming-a-report-on-the-generalising-of-maori-specialist-staff-positions-in-the-tertiary-education-sector/

Potts, A., & Stebletsova, G (2021). Learning through lockdown. Southern Institute of Technology *Journal of Applied Research, 6*, 1-11. https://www.sit.ac.nz/sitjar

Powell, D. A., Jacob, C. J., & Chapman, B. J. (2012). Using blogs and new media in academic practice: Potential roles in research, teaching, learning, and extension. *Innovative Higher Education, 37(4)*, 271-282. https://doi.org/10.1007/s10755-011-9207-7

Quince, E., & Medland, C. (2016). Using social media to enhance the peer mentoring experience at the University of Southampton. *Journal of Learning Development in Higher Education, Special Edition: Academic Learning*, 2. https://www.researchgate.net/profile/Charlotte-Medland/publication/312601612_Using_social_media_to_enhance_the_peer_mentoring_experience_at_the_University_of_Southampto

Radmehr, F., Niazi, N., Rezvanifard, F., Farsani, D., Laban, W., Overton, J., & Bakker, L. (2021). How do university students of different ethnic backgrounds perceive factors that hinder learning in STEM and non-STEM majors? *Higher Education Research & Development*, 1–17. https://doi.org/10.1080/07294360.2021.1902949

Rangahau. (n.d.). *Principles of Kaupapa Māori*. http://www.rangahau.co.nz/rangahau/27/

Raymond, M., Siemens, J., Thyroff, A. (2021). Students. Please teach us! Implementing student-employee reverse mentoring to increase career readiness. Marketing Education Review, 31(2), p. 87-92. https://doi.org/10.1080/10528008.2021.1907593

Rawlings, C., & Wilson, K. (2013). Tuakana-teina e-belonging report. *AKO Aotearoa, RHPF Central, Wellington, New Zealand. https://ako.ac.nz/assets/Knowledge-centre/RHPF-c39-How-Maori-distance-students-can-have-a-sense-of-belonging/RESEARCH-REPORT-Tuakana-teina-e-Belonging-Report.pdf*

Royal Society Te Apārangi (n.d.). *He waka eke noa*: *Mentoring in the Aotearoa New Zealand research community. https://royalsociety.org.nz/assets/documents/mentoring-guidelines 2017.pdf*

Ruckstuhl, K., Amoamo, M., Hart, N. H., Martin, W. J., Keegan, T. T., & Pollock, R. (2019). Research and development absorptive capacity: A Māori perspective. *Kōtuitui: New Zealand Journal of Social Sciences Online, 14(1),* 177-197. https://doi.org/10.1080/1177083X.2019.1580752

Sandu, N., & Gide, E. (2019, September). Adoption of AI-Chatbots to enhance student learning experience in higher education in India. *2019 18th International Conference on Information Technology Based Higher Education and Training (ITHET),* 1-5. https://doi.org/10.1109/ITHET46829.2019.8937382

Scoop Education. (2014, September 17). *AUT opens new centre to boost NZ science and tech education* [Press release]. https://www.scoop.co.nz/stories/ED1409/S00106/aut-opens-new-centre-to-boost-nz-science-and-tech-education.htm

Sinclair, C. (2003). Mentoring online about mentoring: Possibilities and practice. *Mentoring and Tutoring, 11(1),* 79-94. https://doi.org/10.1080/1361126032000054826

Smailes, J., & Fontainha, E. (2011). *Academic Adjustment: a pilot to assess the potential of a virtual mentoring scheme* [Paper presentation]. In 6th Iberian Conference on Information Systems and Technologies.https://ieeexplore.ieee.org/abstract/document/5974270?casa_token=ggXOTCj_49kAAAAA:9l3o8cPSD-ei6m9W-wwQDJstSCZ_y_FXYStGiGufn1vCgZfMXNj1EYYyAxn0eoXN5dG9fs8wMNnM

Smith, G. (1997). *The development of Kaupapa Māori*: *Theory and praxis* [Unpublished master's thesis]. University of Auckland].

Smith, G. H. (2000). Māori education: Revolution and transformative action. *Canadian Journal of Native Education, 24(1),* 57-72.

Statista. (n.d.). Social media and user-generated content. https://www.statista.com/markets/424/topic/540/social-media-user-generated-content/#overview

Statistics New Zealand. (2018, March 6) *2018 New Zealand Census*. https://www.stats.govt.nz/2018-census/

Stein, S. J., Shephard, K., & Harris, I. (2011). Conceptions of e-learning and professional development for e-learning held by tertiary educators in New Zealand. *British Journal of Educational Technology, 42(1),* 145-165. https://doi.org/10.1111/j.1467-8535.2009.00997

Stem-Tec, AUT. (n. d.). *Science, Technology and Engineering and Mathematics Tertiary Education Centre*. https://stemtec.aut.ac.nz/

Stirling, A. (2007). A general framework for analysing diversity in science, technology, and society. *Journal of the Royal Society Interface*, *4*(15), 707-719. https://doi.org/10.1098/rsif.2007.0213

Stucki, P. (2010). *Māori pedagogy, pedagogical beliefs and practices in a Māori tertiary institution* (Doctoral thesis, Massey University). https://mro.massey.ac.nz/bitstream/handle/10179/2329/02_whole.pdf

StudyTogether. (n.d.). *You will never study alone again*. https://www.studytogether.com/

Suzuki, J., & Kodama, F. (2004). Technological diversity of persistent innovators in Japan: Two case studies of large Japanese firms. *Research Policy*, *33*(3), 531-549. https://doi.org/10.1016/j.respol.2003.10.005

Tahau-Hodges, P. (2010). *Kaiako Pono: Mentoring for Māori learners in the tertiary sector*. Te Puni Kōkiri. https://ako.ac.nz/assets/Knowledge-centre/NPF-07-01-kaiako-pono/RESEARCH-REPORT-Kaiako-Pono-Mentoring-for-Maori-Learners-in-the-Tertiary-Sector.pdf

Taituha, G. (2021). *Te aho tapu uru tapurua o e te muka e tui nei a muri, a mua: The sacred strand that joins the past and present muka strands together* (Doctoral thesis, Auckland University of Technology). http://hdl.handle.net/10292/14464

Te Ratana, R. (2021). *Te Ao Manamanaia* (Doctoral thesis, Auckland University of Technology). http://hdl.handle.net/10292/14431

Tertiary Education Commission. (2020, November 13). The Tertiary Education Strategy. https://www.tec.govt.nz/focus/our-focus/tes/

Tertiary Education Commission. (2020, February 28). Ōritetanga learner success approach. https://www.tec.govt.nz/focus/our-focus/oritetanga-tertiary-success-for-everyone/

Tertiary Education Commission (n.d.-a). *Ōritetanga learner success conference, august 2019: Dr Tristan Denley* [Video]. YouTube. https://www.youtube.com/watch?v=WHjpP7mR8RM&ab_channel=TertiaryEducationCommission

Tertiary Education Commission. (n.d.-b). *Annual report 2020.* https://www.tec.govt.nz/assets/Reports/TEC_Annual_Report_2020.pdf

Tertiary Education Commission. (n.d.-c) *Ōritetanga – tertiary success for everyone.* https://www.tec.govt.nz/focus/our-focus/oritetanga-tertiary-success-for-everyone/

The Treasury. (2018, September 26). *Statistical Analysis of Ethnic Wage Gaps in New Zealand (AP 18/03).* The Treasury New Zealand https://www.treasury.govt.nz/publications/ap/ap-18-03

Theodore, R., Tustin, K., Kokaua, J., Gollop, M., Kiro, C., Taylor, N., & Poulton, R. (2020). Occupations and industries of employment of Māori university graduates: early career aspirations and destinations. *KOTUITUI: New Zealand Journal of Social Sciences Online, 15*(1), 140-153. https://doi.org/10.1080/1177083X.2019.1669671

Theodore, R., Taumoepeau, M., Tustin, K., Gollop, M., Unasa, C., Kokaua, J., Taylor, N., Ramrakha, S., Hunter, J., & Poulton, R. (2018). Pacific university graduates in New Zealand: What helps and hinders completion. AlterNative, 14(2), 138-146. https://doi.org/10.1177/1177180118764126

Theodore, R., Gollop, M., Tustin, K., Taylor, N., Kiro, C., Taumoepeau, M., Kokaua, J., Hunter, J., Poulton, R. (2017). Māori university success: What helps and hinders qualification completion. *AlterNative, 13*(2), 122-130. https://doi.org/10.1177/1177180117700799

Theodore, R., Tustin, K., Kiro, C., Taumoepeau, M., Taylor, N., Chee, K., Hunter, J. & Poulton, R. (2015). Māori university graduates: Indigenous participation in higher education. *Higher Education Research and Development.* 35(3): 1-15.

Thorpe, M. (2002). Rethinking learner support: The challenge of collaborative online learning. *Open Learning: The Journal of Open, Distance and e-Learning, 17(2),* 105-119. https://doi.org/10.1080/02680510220146887a

Treston, H. (1999). Peer mentoring: Making a difference at James Cook University, Cairns. It's moments like these you need mentors. *Innovations in Education and Training International, 36*(3), 236-243. https://doi.org/10.1080/1355800990360309

University of Auckland. (2022, January 22*). Covid-19 information for our community. https://www.auckland.ac.nz/en/news/notices/2022/covid-19.html*

University of Auckland. (n.d.). *Tuākana*. https://www.auckland.ac.nz/en/creative/study-with-us/maori-and-pacific-students/tuakana-programme.html

University of Canterbury. (n.d.). *Mentoring programmes.* https://canterbury.ac.nz/support.get-support/new/mentoring-programmes/

University of Otago. (n.d.-a)*. Ka Rikarika a Tāne – Mentoring programme*. https://www.otago.ac.nz/maoricentre/services/mentoring/index.html

University of Otago. (n.d.-b). *Academic mentoring programme* (Taimane). https://www.otago.ac.nz/pacific/students/currentstudents/otago022938.html

University of Otago. (n.d.-c). *Kaiāwhina Māori*. http://www.otago.ac.nz/maori/contacts/for-staff/kaiawhina-maori/

Vaioleti, T. M. (2006). Talanoa research methodology: A developing position on Pacific research. *Waikato Journal of Education*, *12,* 21-34. https://doi.org/10.15663/wje.v12i1.296

Valencia, H. G., Villota Enriquez, J. A., & Agredo, P. M. (2017). Strategies used by professors through virtual educational platforms in face-to-face classes: A view from the Chamilo platform. *English language teaching, 10(8),* 1-10. http://doi.org/10.5539/elt.v10n8p1

Valencia, H. G., Enríquez, J. A. V., & Tigreros, M. E. F. (2018). Innovative Scenarios in the Teaching and Learning Process: A View from the Implementation of Virtual Platforms. *English Language Teaching, 11(7)*, 131-141. http://doi.org/10.5539/elt.v11n7p131

van der Meer, J., & Scott, S. (2013). Including everyone: A peer learning program that works for under-represented minorities? *The International Journal of the First Year in Higher Education, 4(1),* 85-94. https://doi.org/10.5204/intjfyhe.v4i1.147

Van Wart, M., Ni, A., Medina, P., Canelon, J., Kordrostami, M., Zhang, J., & Liu, Y. (2020). Integrating students' perspectives about online learning: a hierarchy of factors. *International Journal of Educational Technology in Higher Education, 17(53),* 1-22. https://doi.org/10.1186/s41239-020-00229-8

Victoria University of Wellington. (n.d.). *Pasifika student success*. https://www.wgtn.ac.nz/pasifika/our-community/pasifika-student-success

Waitangi Tribunal. (1999). *The Wānanga capital establishment report* (Report No. Wai 718). https://forms.justice.govt.nz/search/Documents/WT/wt_DOC_68595986/Wai718.pdf

Waitangi Tribunal. (1986). *Report of the Waitangi Tribunal on the Te reo Māori claim* (Report No. Wai 11).
https://forms.justice.govt.nz/search/Documents/WT/wt_DOC_68482156/Report%20on%20the%20Te%20Reo%20Maori%20Claim%20W.pdf

Walker, R. (2016). Reclaiming Māori education. *Decolonisation in Aotearoa: Education, research, and practice,* 19-38.

Wilcox, P., Winn, S. and Fyvie-Gauld, M. (2005) ''It was nothing to do with the university, it was just the people': The role of social support in the first-year experience of higher education'. *Studies in Higher Education, 30(*6), p. 707-722. http://dx.doi.org/10.1080/03075070500340036

Wilkie, M. (2014). Te Timata – The first step to Māori succeeding in higher education. *In Māori and Pasifika Higher Education Horizons, 15(1),* 61-81. https://doi.org/10.1108/S1479-364420140000015012

Williams, L. S. (1991). The effects of a comprehensive teaching assistant training program on teaching anxiety and effectiveness. *Research in higher education, 32(5)*, 585-598. https://doi.org/10.1007/BF00992630

Wilson, D. (2017). Supervision of Indigenous research students: Considerations for cross

cultural supervisors. *Alternative: An International Journal of Indigenous Peoples, 13*, 256- 265. https://doi.org/10.1177/117718011772977

Wilson, M., Hunt, M., Richardson, L., Phillips, H., Richardson, K., & Challies, D. (2011). Āwhina: a programme for Māori and Pacific tertiary science graduate and postgraduate success. *Higher Education, 62(6),* 699–719. https://doi.org/10.1007/s10734-011-9413-3

Zhou, T. (2011). Understanding online community user participation: a social influence perspective. *Internet Research, 21(1),* 67-81. https://doi.org/10.1108/10662241111104884

Glossary

Ako	the culturally preferred pedagogy principle.
Hāpai	Māori student peer mentor
Iwi	often refers to a large group of people descended from a common ancestor
Kaitiaki	custodian.
Kaitiakitanga	guardianship principle.
Kanohi ki te kanohi	face to face.
Kaumātua	elders.
Kaupapa Māori	a philosophical doctrine, incorporating the knowledge, skills, attitudes, and values of Māori society.
Kia piki ake i ngā raruraru o–te kainga	the socio-economic mediation principle.
Kotahitanga	unity.
Kōrero	to tell, say, speak, red, talk, address.
Māhakitanga	humility, or humbleness.
Mahitahi	cooperative learning.
Manaakitanga	the process of showing respect, generosity, and care for others.
Marae	courtyard – the open area in front of the wharenui where formal greetings and discussions take place.
Mātauranga Māori	Māori knowledge.
Mōhiotanga	knowledge, understanding, comprehension.
Noho marae	sleep over at the marae
Pākehā	English, foreign, New Zealander of European descent.
Rangatiratanga	chieftainship. right to exercise authority.
Taonga	applied to anything considered to be of value.
Taonga tuku iho	the cultural aspirations principle.
Tautokotanga	to support, prop up, advocate.
Te ao Māori	the Māori world.
Teina	younger brother of a male, younger sister of a female.
Te reo Māori	the Māori language.
Te Tiriti o Waitangi	the Treaty of Waitangi.
Tikanga Māori	the customary system of values and practices.
Tikanga tuku iho	customary law, tradition, lore, custom.
Tino rangatiratanga	self-determination.
Tuakana	elder brother of a male, elder sister of a female.
Tūpuna	ancestors.
Utu	revenge; reciprocity.
Wānanga	to meet and discuss
Wairuatanga	recognition of the spiritual dimension.
Whakapapa	Māori genealogy.
Whakawhanaungatanga	process of establishing relationships, relating well to others.
Whānau	family group, extended family.

Whanaungatanga   relationship, kinship, a sense of family connection.

Appendix 1: List of university STEM initiatives across Aotearoa New Zealand
(Source: Adapted from Ruckstuhl et al., 2019)

Māori initiative

- Victoria University of Wellington:
    - Te Rōpū Āwhina
    - Te Putaiao Māori
- University of Waikato
    - Te Pūtahi o te Manawa
- University of Canterbury
    - Science, Māori, and Indigenous Knowledge
- University of Otago
    - Māori at Health Sciences
    - Kaiāwhina Network for Sciences
    - Te Ara Hauora: Māori Health Sciences Outreach
    - Tū Kahika: A Health Sciences Scholarship
    - Science Wānanga
    - Manutaki Tuarua Māori

Māori and Pasifika initiatives:

- Victoria University of Wellington:
    - Māori and Pasifika Te Rōpu Āwhina
    - Expos to boost learning
- University of Auckland:
    - Tuākana Outreach
    - Tuākana Mentoring Programme
    - Tuākana Maths
    - Tuākana Engineering Programme
    - South Pacific Indigenous Engineering student network
- Auckland University of Technology:
    - STEM – TEC
    - STEM – TEC Bridging

Virtual platform for Māori and Pacific students
By Lui Hellesoe

Abstract

We propose a novel virtual platform where students can access various services, including AUT student support services, STEM events, mentoring sessions, social media links, study chatrooms and forums. The platform is designed to help Māori and Pacific students gain access to resources and mentoring support as acknowledged in the Ka Hikitia: Māori education strategy and actions for tertiary institutes (Ministry of Education, n.d.-a, n.d.-b).

Introduction

We propose a virtual platform application to serve as study rooms where Talanoa designed rooms can serve as a space to exchange ideas or thinking can take place without fear of judgement (Vaioleti, 2006). Virtual platforms serve as a blank slate to build support services for Māori and Pacific students studying STEM-related subjects. Virtual platforms have proved useful to build students knowledge in specific tertiary subjects and establish successful student mentoring relationships (Monetero-Fleta, & Perez-Sabater, 2014; Gregg et al., 2017)

Advantages of Virtual Platforms

- Online services gives intuitions more flexibility to adapt to the needs of the users (Scoop Education, 2014).
- Opportunity to use tools that help to promote meaningful learning in the students (Valencia et al., 2017).
- Teaching supported by technology facilitates the learning of problem solving and cognitive abilities (Gomez & Franco, 2018)

Problem Statement

The number of Māori and Pacific students enrolling and successfully completing their studies is significantly less than other ethnic groups in a graduate population and STEM related graduates (Ruckstuhl et al., 2019). To combat this the government has presented the Ka Hikitia – Ka Hāpatia, including the Ōritetanga learn success framework to support and empower tertiary education organisations so Māori education is at the centre (MOE, n.d.-a).

Ka Hikitia Focus Areas

1. Māori participate and achieve at all levels at least on a par with other students in tertiary education.
2. Māori attain the knowledge, skills and qualifications that enable them to participate and achieve at all levels of the workforce.
3. Grow research and development of mātauranga Māori across the tertiary sector.
4. Increase participation and completion in Māori language courses at higher levels, in particular to improve the quality of Māori language teaching and provision.

Virtual Learning Platform for Māori and Pacific Students

We propose a virtual platform that can provide ongoing support for Māori and Pacific students by providing easy access to the many services offered by AUT.

1. We propose the platform is built on the six Kaupapa Māori principles to ensure the specific cultural values are met for students.
2. The support from student mentors and faculty staff members will help add friendly faces for students.
3. The ECMS for undergraduate and post graduate Māori and Pacific students is small. Although the platform has potential to expand due to the limitations with virtual platforms

Additionally, supplying study rooms at different levels i.e. certificate, postgraduate, and undergraduate papers without limitation to access gives students a social environment where they can learn and grow in an environment catered to improve their education success.

Appendix 3: Māori and Pacific student mentoring programme

Technology, Process and Students from a Māori lens (V10)		ECMS School actions	University theme
Building strong relational trust between faculty staff, students & families	**Building partnerships with Māori students and lecturers and allies** • Selecting ECMS pathways; Showing end of the pathway to get more interest in ECMS papers. • Conversation with university school registrars; 118 Māori undergraduate students are participating in 5 ECMS degrees, with the majority doing BCIS followed by engineering. Four students chose a double major (Māori Undergraduate students [Unpublished raw data], 2021). • Postgraduate coordinators; 5 Māori postgraduate ECMS students, three doing Masters, one certificate and one diploma in mathematical sciences • Tracking of student's progress (Track progress over the semester with a follow up over the next eight weeks into semester 2) **Building allies with well-known identities in ECMS** • Leanne Bint (Can help with industry connections) • Phil Robbins (Can help with hackathon events) • The receptionist at the WZ level 3 building (Knows a lot about student services and access into STEM spaces in WZ) **Technology retreat:** • A platform for tertiary students who are Māori or Pacific and studying technology to share ideas, opinions, and experiences on technology and innovation. The goal and expectation of technology retreats is not for growth and expansion, but rather for survival and contraction (Adner & Snow, 2010) • Ex: Learn to code in Python, use professional tools for graphic design, develop your first app, and learn how to create animation pixel art for it. They are creating a technology artefact as a community that students could adapt to next year or build on. **Creating Application Programming Interface (API) with a Virtual Platform** • Create a data API's mixed with open-source tools for Māori and Pasifika Universities (Foster, Kesselman, & Tuecke, 2001)	**Ongoing development & improvement of the school's mentoring framework for Māori students**	**THEME 3:** **Responding to our place in the world** **Respecting Te Tiriti o Waitangi to advance Mātauranga Māori and te reo and achieve the benefits a university can provide with and for Māori.** **THEME 5:** **Being a place where people love to work and learn**

53

	• Ex. Creating a tool that engages Māori and Pacific learners from different universities. • Ex. Building an online platform that integrates other existing or new API for academic learning • Using existing programmes like Mentimeter (https://www.mentimeter.com/) and Google JamBoard (https://jamboard.google.com/)as free to use services		
High expectations & supportive communities	**Attendance at organised Māori learning centred initiatives.** • Engaging with disciplinary text ECMS (supportive reading) • Ex: Using appropriate pedagogies to support the development of scientific literacy (for example, programming languages and software for years 1, 2 and 3 based on the qualification programs in an online platform) • Access to online resources such as industry newsletters or blogs written by professionals working within the ICT sector (Powell et al., 2012)		
	Talking about challenges with students and connecting students to the student support services located in student hub, library and graduate research school (Ludwig-Hardman, & Dunlap (2003). The goal is to increase overall retention and completion rates for Māori and Pacific students. (https://www.educationcounts.govt.nz/statistics/achievement-and-attainment) **Working collaboratively with students and key support personnel:** • Ex: Possibly make a video with crucial support personnel – lecturers, learning support, appointed Māori representatives (Stein et al., 2011)		
	Fortnightly hui.		
	Participation in library and graduate research school workshops		
Structured and sequential support programme	**Session 1 – Meet and Game with kai** **Meet the Student Lead with the academic support group** **Whakawhānaungatanga** **Create Academic Plans:**		

	• Online tool to help Māori and Pasifika students to create their academic plans each semester. It will also teach programming language skills, IT frameworks, pitching ideas and other soft skills. It should be available in te reo Māori and Pasifika languages and English as a second language. More important in times of COVID-19 (Dhawan, S. 2020). • Data-Informed Initiatives to Enhance Māori and Pacific Student Achievement • Students choose their papers for the undergraduate degree (Auckland University of Technology, n.d -b). • Engineering computer Mathematical Sciences Undergraduate Programme, (https://www.aut.ac.nz/study/study-options/engineering-computer-and-mathematical-sciences) **Service Solutions:** • A platform that caters to Māori and Pasifika students in tertiary institutions. A platform where they could meet up to share solutions ideas and mentor each other. • Create a better service or solution. For example, online instructors and mentors can enhance university learning - increasing value to students and perhaps lowering costs/cost structures. We can get online video calls with mentors discussing career paths in different sectors (Sinclair,2003)
	Session 2 - Mentoring induction – Goals, roles, and expectations; Assignment 1
	Session 2/3 - Assignment 1 **Guide students through the library and graduate research centre courses for developing academic writing skills. I.e. Studioisty, specialise librarian, Māori and Pasifika learning advisors (https://www.aut.ac.nz/student-life/student-support/maori-student-support; https://student.aut.ac.nz/support-services/te-tari-takawaenga-maori-student-support; https://library.aut.ac.nz/for-lecturers/liaison-librarian-services)**
	Session 4 - Academic workshops
	Session 5 - Accessing learning support - Time management
	Session 6 – ChatBot technology (digital artefact) • Could set as a project

	• Can also have paid service options to produce Chatbots (https://www.quickchat.ai/product)	
	Waiora – two fun social events related to Programming Competitions and Gaming weaved in with the sharing of food	
Providing culturally located technology spaces in ECMS	**Regular space for meet up times with students** **Empowering Māori and Pacific with Technology:** • An ECMS space that contributes to the response of the needs of Māori and Pacific students. • Spaces can be virtual to provide more support for students.	
	Organised events – Hackathon, Alumni events to share experiences of the first assignment in ECMS [Digital innovation: The hackathon phenomenon (Briscoe, 2014)	
Providing a wraparound support service within AUT, connecting students with external partnerships, and financial support	**Connecting Māori students to AUT Student Hub connections for Māori**	**Review student support & strengthening support for first-year students**
	Students are connecting to Industry mentors providing Industry events.	**Ongoing development & improvement of the school's mentoring framework for Māori students**
	They provide avenues for financial support to cover students' fees, learning costs, and accommodation costs.	