



Te Kāhui Amokura

Tauira Māori Initiatives – Sharing good practice in New Zealand universities

Within all the New Zealand universities there are over 300 initiatives for tauira Māori operating and achieving outstanding results. The drive to ensure tauira Māori are successful at university is much deeper than just improving organisational achievement and retention statistics, but rather a genuine commitment to support tauira to make a real difference in their life, for their whānau and their wider community.

In 2016, 16,755 tauira Māori were enrolled within New Zealand universities 11% of all domestic students. This is an increase of 19% since 2008. Of those tauira 12,610 are EFTS (full-time), an increase of 26% since 2008. We also know that 48% of Māori graduates are the first in their family to attend university, a third are parents and over 70% are female.¹ We acknowledge this progress within our universities, but always more can be done.

The types of programmes that significant shifts in Māori participation and achievement have targeted three key areas, which get results:

- **Preparation:** Targeted projects which remove barriers and better prepare Māori secondary school students for university
- **Academic and Pastoral Support:** Tailored approaches for supporting tauira Māori in particularly their first year at university
- **Progression:** Initiatives to support progression of Māori students into post-graduate studies.

Other research suggests that success in the first year for a tertiary student – particularly in the first semester of study – is a critical factor for the retention and completion of Māori students.² The success of tauira through any programme or initiative cannot be assumed in isolation to the university alone. Tauira Māori have many influences including their whānau and iwi aspirations.

This is the first of a series of publications from Te Kāhui Amokura that acknowledge the dedication, hard work and 'good practice' programmes for tauira Māori across the university sector. These initiatives are contributing towards our goal of building Māori success in New Zealand universities.

This paper looks at four initiatives:

1. Transition, Academic and Learning Support: Māori Health Workforce Development Unit – Tū Kahika and Te Whakapuāwai
2. Māori in STEM: Pūhoro STEM Academy
3. A University Wide Initiative: Tuākana Learning Community
4. Targeted Admission Scheme: Māori and Pasifika Admission Scheme (MAPAS)

These programmes have evidence of success, have a strong focus on transition factors and are targeted at first year university and secondary school students.

There are useful common findings from these programmes to be considered for any future initiative development or reviews. They include:

- Kaupapa Māori Frameworks have contributed towards improved academic achievement results;
- Creating environments that foster whanaungatanga (community and sense of belonging) between peers impacts positively on ongoing tauira involvement with a programme;
- Engagement with whānau (family) to build an understanding of the university environment - academic requirements and pastoral support available;
- Culturally appropriate academic and learning support approaches are crucial;
- Culturally competent staff (both Māori and non-Māori) are valuable to programmes;
- Culturally safe learning environments should include non-lecture scenarios (tutorials, mentoring sessions etc.);
- Māori Leadership and a clear commitment and accountability to raising Māori achievement is essential;
- Data collection, tracking and evaluative processes, and;
- A Tauira voice must be included in the evaluation to effectively monitor student progress and to highlight a programmes strengths and weaknesses.

¹ [Tatauranga 1: 'Māori' in New Zealand Universities 2016 \(TKA\)](#)

² Ministry of Education, 2007. Te Whai i ngā taumata atakura: supporting Māori achievement in Bachelors Degrees.



Case Study Tuatahi: Transition, Academic & Learning Support

University of Otago: Māori Health Workforce Development Unit

Tū Kahika & Te Whakapuāwai

Programme Aim: As a part of the wider 'Otago Project' the goal is to increase Māori student recruitment, retention and achievement in Health Science programmes at the University of Otago.

- Achievements:**
- Māori Health Workforce Development Unit (MHWDU) attribute the success of their Māori students to not just one specific programme but to the overall collaborative work of the unit.
 - Progression onto further tertiary study for Tū Kahika students is 85% compared national average of 83%.
 - Tū Kahika 95% retention rate.
 - Te Whakapuāwai 2016-2017 successful completion of programme by 149 Māori students.
 - Substantial growth of Māori students in Health Programmes - average of 25% per year.

Evaluated: Yes – substantial evidence (Data, Research)

1. Background

In 2009 the Ministry of Health, Tertiary Education Commission and University of Otago together developed 'The Otago Project' to increase Māori student recruitment, retention and achievement in Health Sciences programmes at the University of Otago.

Three strands of activity were contracted and commenced in 2010: Strand 1: The establishment of a Māori Health Workforce Development Unit (MHWDU); Strand 2: Māori Science Communication and Student Recruitment; and Strand 3: Tū Kahika: Culturally Responsive Transition Programme, Te Whakapuāwai and Tū Taura Hauora.

The MHWDU is in the Health Sciences Division at Otago. The unit is underpinned by Māori values, and all operations of this unit are undertaken in a Māori values framework. The unit comprises of 6 staff – Director, Programme Manager, Business Manager, Administrator and two Student Coordinators. In 2017, 749 taura Māori were enrolled in Health Sciences study.³

The MHWDU goal 'aims for a workforce that represents the population within a context of cultural responsiveness, accountable management and continuous quality improvement'. Research undertaken by the unit informs and improves their activities and provides evidence of good practice in engaging Māori tertiary learners in health and health sciences. The unit also look to better understand how we might eliminate ethnic and socio-economic inequalities in education and health in New Zealand.

Strand 3 of the programme comprises:

- 1) Tū Kahika Scholarship: Culturally responsive Foundation Year transition programme.
- 2) Te Whakapuāwai: Health Science First Year (HSFY) Māori student support and achievement programme.
- 3) Tū Taura Hauora: Māori undergraduate Health Science and Health Professional student support programme (professional development and retention).

We acknowledge that the Māori Health Workforce Development Unit (MHWDU) attribute the success of their Māori students to not just one specific programme but to the overall collaborative work of

³ University of Otago, report provided to Te Kāhui Amokura (2017)



the unit. For this paper, Tū Kahika and Te Whakapuāwai programmes will be looked at in more depth under our headings ‘Transition, Academic and Learning support’.

The **Tū Kahika Scholarship Programme** is a culturally responsive approach to support selected taura through their transition into the Health Sciences Division and the wider University environment. The objectives of Tū Kahika align with Ministry of Health strategy *Raranga Tupuake: Māori Health Workforce Development Plan 2006* and *Tertiary Education Strategy 2010-2015* to increase the Māori health and disability workforce in New Zealand and increase the number of Māori students enjoying higher levels of academic success in tertiary study.

The decision to create this programme within a foundation year was based on a recognised need for addressing educational gaps and disadvantage. Māori students in years 11-13 continue to have relatively lower science subject participation and attainment in comparison to non-Māori. Māori students are also disproportionately represented in lower decile schools with relatively few school leavers continuing into tertiary study when compare with students in more affluent schools.⁴

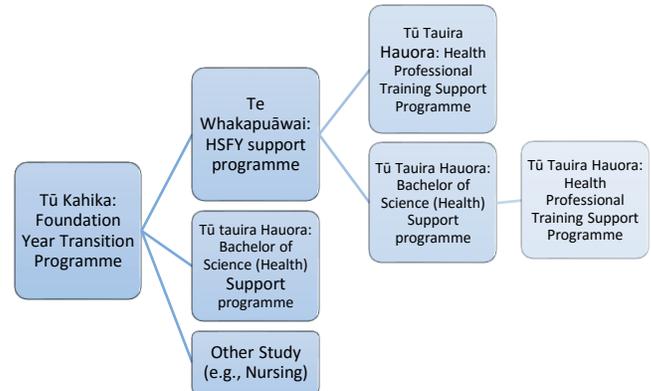
Te Whakapuāwai was developed in 2010 to address the gap identified by the MHWDU in student support for Māori students progressing through Health Sciences First Year (HSFY). HSFY is a demanding academic programme comprising of 7 core science papers. To gain entry to a health professional programme at Otago students must complete and pass all HSFY papers with the required grade point average (specific to each programme) and meet other criteria to be considered for admission.

It was first delivered in 2011 to the HSFY Māori cohort and since this time it has developed into a substantial student academic and learning support programme.

2. Programme Overview

There are several pathways that students can follow to enter health professional programmes at Otago. The MHWDU provides targeted support to students across all levels of study to support transition, academic achievement, retention and professional development.⁵

Pathways & MHWDU Support Programmes Foundation Year to Degree Completion



Tū Kahika

The Tū Kahika Scholarship Programme is led and delivered by Māori staff who provide wrap-around academic, learning and pastoral support to successful recipients of the scholarship. Those staff support the students and whānau to transition into the University and assist and guide the student’s aspirations to progress and achieve in the Foundation Course to better prepare them for further Health Sciences degree level study.

The scholarship is unique as it centres on meaningful relationship building with (potential and successful) scholarship recipients and their whānau prior to selection into the programme.

The first phase of Tū Kahika was implemented in 2010 with 14 students gaining scholarships. There were 19 students in 2011, 10 students in 2012 and 18 scholarship holders in 2013.⁶ The programme now sees approximately 20 taura participating each year. Since its establishment it has supported 133 Māori students to successfully transition through the foundation year.

⁴ Ministry of Education, 2012.

⁵ Tū Kahika is fully funded by the Ministry of Health (including staffing and student associated costs).

⁶ International First Year in Higher Education Conference (2013) – A culturally responsive foundation programme in health science for Māori students. J. Baxter, Z. Bristowe, D. Thorburn.



This programme has been specifically designed for taura who:

- Whakapapa Māori (Māori genealogy)
- Show a commitment to Māori Health and Development
- Year 13 or recent school leaver
- Stay in a residential college (Arana or Studholme) during their first year of study.

Successful Tū Kahika students are provided with:

- Foundation Year tuition fees paid in full
- Financial contribution to accommodation in a University of Otago Residential College (\$5,000)
- Additional targeted tutorials in Core Subjects; Science, Maths
- A Kaiārahi (Student Coordinator)
- Activities that foster whanaungatanga
- Accelerated learning development support
- Career development and health career exposure
- Professional and cultural development.⁷

Students who apply for the Tū Kahika Scholarship are shortlisted according to a range of criteria. Shortlisted applicants are then interviewed with their whānau in (or close to) their home region. This is the start of establishing an on-going relationship with the student, but also the wider whānau.

The interview process provides whānau the opportunity to learn about Tū Kahika - Foundation Year, Health Sciences First Year and further pathways to careers in health. It is also an opportunity to demystify 'university'. Students who are not successful gaining entry to the programme are given comprehensive study and course advice by the interviewers.

Some students enter Tū Kahika with a strong academic background, rich in math and science at NCEA level 2 and 3 (41% of all TK cohorts). However, a large proportion of Tū Kahika students, may have significant science 'gaps' (typically chemistry or physics) and/or no University Entrance qualification when entering into the programme.

Academic and Learning support includes additional subject specific tutorials at *Te Huka Mātauraka*⁸

(The Māori Centre) and at their residential college. Learning support services includes the additional skills taura need at university: time management, goal setting, exam preparation, and study skills workshops. The role Te Huka Mātauraka plays in supporting the MHWDU with this academic and learning support work is fundamental.

The programme is then held over two semesters and a dedicated Kaiārahi (Student Coordinator) is employed to work with each student to monitor and enhance their academic performance during the programme. They coordinate extra activities including tutorials and professional development opportunities and cultural activities. Through doing this the Kaiārahi gain a detailed understanding of each student's learning and academic strengths and challenges.

In 2016, 94% of Tū Kahika students completed the foundation year, and 84% progressed into Health Sciences First Year.



First Year students – Powhiri for Orientation Week

Te Whakapuāwai

Te Whakapuāwai has been tailored to meet the needs of Māori students entering, and through the HSFY course. The programme has been continually quality improved since its development through the extensive research by the MHWDU drawing on national and international best practice, and their analysis of outcomes data and student feedback gathered through evaluation and focus groups.

Objectives of Te Whakapuāwai are:

- To improve academic outcomes for Māori HSFY students (including those from lower socio-economic backgrounds and lower decile schools).

⁷ Otago University - Tū Kahika Scholarship Programme [Information](#)

⁸ Te Huka Mātauraka Māori Centre: <http://www.otago.ac.nz/maoricentre/index.html>



- ii) Ensure Māori students are well-informed and well supported in their transition into and through HSFY.
- iii) Provide a high level of academic and pastoral support to ensure a positive experience for Māori HSFY students.
- iv) Gather evidence and disseminate findings about best practice to support student retention, transition and academic achievement.

An overview of Te Whakapuāwai components can be separated into three targeted areas of support – individual, group and at a cohort level. Each level of support has primary functions which it undertakes, but all levels are underpinned by Whakawhanaungatanga (relationships).

At an individual level, there are one-to-one hui between the taura and a staff member. The focus of the hui is; goal setting, time management, course information, guidance with admission and general student wellbeing. Group level support moves into areas of study wānanga, tutorials and workshops, and a study skills acquisition programme delivered by Māori health professionals and student mentors called SWAT. At a cohort level, there is an induction process, mindset workshops and regular hui/activities for taura.

Most Te Whakapuāwai taura transition from HSFY into Bachelor of Science degrees, or health professional programmes. This transition is supported by Tū Taura Hauora, the third programme delivered within Strand Three of the Otago Project.

3. Programme Results & Evaluation

Both Tū Kahika and Te Whakapuāwai have seen outstanding results since their implementation. The programmes are comprehensively and formally evaluated throughout the academic year, both as separate programmes, and collectively through measuring the success of the Otago Project.

Qualitative and quantitative approaches are used through the evaluation methods and data is

collected through the University's student profile and baseline measures, and academic progress. In addition to this, longitudinal data is also collected and evaluated as a continuous improvement and learning methodology.

Of the taura who gained scholarships into the Tū Kahika programme from 2010-2016, 95% remained and completed the year. The average retention and completion rate for Tū Kahika students is higher than the national average for Māori and non-Māori Māori students in sub-degree study in New Zealand.⁹

The average progression rate of Tū Kahika students into tertiary study (at Otago) the following year is 85% which is slightly higher than the national average for tertiary student progression 83% (all ethnicities).¹⁰ In 2017, there were 92 previous taura of the programme studying at the University of Otago, and of those students 15 now have degrees in health, and others are on pathways to post-graduate study or careers in health.

Qualitative feedback from Tū Kahika recipients in the university's 2013 programme report noted that 'Whakawhanaungatanga, learning support and encouragement provided throughout the Foundation Year Health Sciences course had the most impact for taura' (as opposed to the sole provision of financial support to selected students with limited-to-no on-going contact, support or guidance).¹¹

Feedback from the 2016 Tū Kahika cohort highlights themes consistent with previous cohorts (2010-2015), a strong sense of manaaki - gratitude for the support from staff and previous students from the programme.

- 100% of TK16 (TK16 = the 2016 cohort) stated they 'strongly agreed' that the Tū Kahika programme increased their desire to become a health professional.
- 100% of TK16 students 'strongly agreed' (75%) or 'agreed' (25%) they felt 'better equipped for further health sciences study' after Tū Kahika.

⁹ Ministry of Education, 2017

¹⁰ Ministry of Education, 2017

¹¹ University of Otago, report provided to Te Kāhui Amokura (2017)



- 100% of TK students 'strongly agreed' they would 'definitely recommend Tū Kahika to other Māori students'.

A large-scale research project about Te Whakapuāwai (['Weaving Our Worlds'](#)) was completed at the end of 2016. Drawing on the unit's comprehensive database, and the additional findings from the project, the MHWDU can now compare the outcomes for Māori HSFY students over time, 2007-2010 (no support programme), 2011-2013 (Te Whakapuāwai support programme), and 2014-2016 (enhanced Te Whakapuāwai), noting the improvements they had made as the programme was evaluated.

Year of HSFY Study	Total Māori Students HSFY	Enrolled in Otago Health Professional Programme HSFY +1*	
	N	N	%
2008-2010 (pre- MHWDU)	71 (avg.)	24 (avg.)	33% (avg.)
2011	95	45	48%
2012	76	37	49%
2013	106	49	47%
2014	139	64	46%
2015	129	60	47%
2016	147	69	47%
2017	149	Not available until 2018	

For the reporting period 2016-2017, 149 taura supported through HSFY through the successful delivery of Te Whakapuāwai in 2016. Since 2011, the proportion of students gaining entry to a health professional programme has been maintained, with an average of 47% over all cohorts 2011-2016. Te Whakapuāwai has supported 841 Māori HSFY students to date.

Feedback gathered via evaluation processes about the support provided to Māori HSFY students through Te Whakapuāwai is highly positive. The programme and MHWD services are rated by the taura. The 'overall experience' on a weighted average scale of 1-10 (where 1 is 'not valuable' and 10 is 'extremely valuable') was rated by taura as 9.3/10.

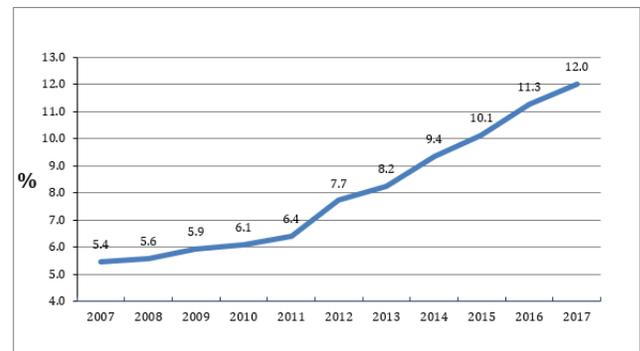
Māori HSFY student's academic outcomes and feedback about Te Whakapuāwai (overall outcomes)

demonstrate it is an invaluable programme that is directly increasing the number of Māori entering health professional programmes and graduating from the University of Otago as qualified health professionals.

These programmes are now also beginning to see their impact on the health workforce. In 2007, there were 62 Māori medical students across five years of the course. A decade later, in 2017 the number of Māori students entering medical school was 62 alone, and 218 Māori medical students across all years – this is a 280% increase indicating an average increase of Māori students of 25% per year.

The figure below shows the growth in the percentage of Māori across Professional Programmes from the MHWDU from 2007-2017.

Māori as % Of Domestic Professional Programme Students 2007-2017



Pipeline growth in Māori health professional students is evident and the unit predicts, based on current trends, that numbers will continue to rise, ultimately resulting in a sustained increase in Māori health professional graduates and the Māori health workforce.

4. Success Factors

Several critical success factors have been identified by the MHWDU as contributing to their success. A summary of these findings includes;

- Strong and effective Māori leadership is important.
- Whakawhanaungatanga is a strength of the programme.
- The quality of the programme staff and a focus on Māori potential is very important.



- Comprehensive strategic approach to lift educational outcomes (clear 'line of sight').
- Research and evaluation of all activity.
- Data collection, tracking, monitoring and analysis (quantitative and qualitative).
- Continuous quality improvement approach.
- Financial and pastoral support is critical.
- Knowing and understanding your taura and incorporating their voice into the programme logic and design.
- Working collaboratively – Māori Centre, Residential Colleges, and Foundation Studies units.

Tū Kahika and Te Whakapuāwai provide taura Māori with effective transition and first year tertiary support at university through adequately preparing them for further degree level health science study. Both programmes successes are founded on being culturally responsive, academically robust and strengths based. They have proven to be successfully contributing to increasing entry into the Māori health workforce in New Zealand and in the next 5 years by 2022, at least 350 qualified Māori health professionals from NZ will enter the health workforce.¹²

For more information

- Tū Kahika
<http://www.otago.ac.nz/mhwdu/tukahika/>
- Te Whakapuāwai
<http://www.otago.ac.nz/hsfy/index.html>
- [Weaving our Worlds – Māori Learner outcomes from an equity-focused and strengths-based programme in Health Sciences](#)

Māori Health Workforce Development Unit

Email: mhwdu@otago.ac.nz

Web: otago.ac.nz/mhwdu

¹² University of Otago, report provided to Te Kāhui Amokura (2017)



Case Study Tuarua: Māori and STEM

Massey University: Pūhoro STEM Academy

- Programme Aim:**
- Build a learning community that includes Māori students and their whānau, schools, iwi, industry and tertiary organisations
 - Increase Māori student participation in STEM programmes
 - Increase Māori student success in programmes that lead to careers in science and technology, and
 - Introduce of career pathways through industry partnerships.

Achievements: Pūhoro students exceeded the nationwide pass rate of non-Māori students in the core science NCEA Achievement standards – Physics, Chemistry and Biology.

Evaluated: Yes

1. Background

The Pūhoro STEM Academy (Pūhoro) located at the Massey University, Palmerston North campus is a community and industry collaboration that recognises whānau as a key driver of success. The Academy works alongside the secondary schools and their whānau to prepare Māori science students for transition to tertiary study, and from there into employment.

The concept for the Pūhoro was inspired by the establishment of Health Science Academy at three secondary schools in South Auckland. In 2011, The initiative responded to the need to increase the Māori and Pasifika health workforce and more specifically prepare students to successfully enter a health science degree and eventual career within the health sector.

The vision for the Academy is to:

'Advance Māori leadership and capability to deliver a world class science community'

This vision reflects the contribution that the Pūhoro community will make to build a well-qualified Māori workforce equipped to lead social, economic and cultural development in the future.

As a Tiriti-led University, this vision also reflects Massey University's commitment to demonstrating authentic leadership.

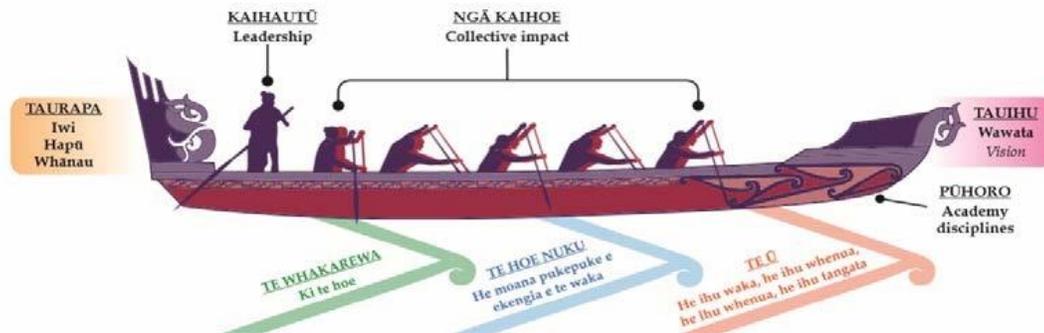
The objectives of Pūhoro are to:

- Build a learning community that includes Māori students and their whānau, schools, iwi, industry and tertiary organisations
- Increase Māori student participation in STEM programmes
- Increase Māori student success in programmes that lead to careers in science and technology, and
- Introduce of career pathways through industry partnerships.¹³

Pūhoro provides a skills pipeline through to the Māori economy. Māori student success in STEM subjects, within the secondary and tertiary sectors, and skilled workforce shortages within science and technology. Pūhoro recognises that a STEM competent workforce is required for an innovation focused society.

Wider members of the wider Pūhoro community include; Our Land and Water National Science Challenge, Te Puni Kōkiri, NZQA, Google, Ministry of Primary Industries, EPro8, Palmerston North City Council, Māori Pharmacists NZ, Ministry for the Environment, Manurewa Marae, MidCentral District Health Board and Counties Manukau District Health Board.

¹³ Massey University, report provided to Te Kāhui Amokura (2017)



This paper will look at the programme in more depth, and its outstanding successes over its initial pilot year in 2016.

2. Programme Overview

At the heart of successful education for all Māori learners is the provision of a culturally responsive environment.¹⁴ There is a strong understanding and commonality across the literature that Māori learners are more likely to engage and persist with their studies when they feel that they are a central part of the learning environment and that they belong.¹⁵ The construct of whanaungatanga is central to this sense of belonging, and this approach is central to the operation and delivery of the Pūhoro programme.

Based in the College of Sciences, the programme supports students to complete the National Certificate of Educational Achievement (NCEA) curriculum within their respective schools – Year 11 to Year 13. The schools deliver the science curriculum and Pūhoro through its Kaihautū (navigators) work with schools, whānau, iwi, students and industry sponsors to provide academic support through contextualising learning through field trips and laboratory visits, tutorials, mentoring as well as each school term provide a STEM experience at Massey University.

Tauira must participate in and sit a minimum of three of the required external science achievement standards at NCEA level 1, Level 2 and Level 3. It is also a requirement that they attend all weekly tutorials, mentoring sessions and Massey University wānanga.

Pūhoro staff work with participant schools to select students based on their interest in science; desire to join the Pūhoro programme; and commitment to undertake the additional requirements of the Pūhoro programme including additional tutorials, mentoring sessions and field trips. Schools are advised that proven academic capability and engagement in science should not be considered when selecting students.

When students register with the Pūhoro programme, their entire whānau is invited to also register with the programme, and whānau are invited to participate in biannual Whānau STEM Expo. They are also required to comment on their respective career aspirations.

Prior to engaging tauira in STEM related activities, Kaihautū sought to first develop relationships with the tauira. The first term in 2016 was dedicated towards student mentoring and relationship building. Kaihautū met fortnightly with students and undertook one-on-one interviews.

Interviews sought to firstly advance relationships, then to determine how students are feeling about their science classes and eventually provide feedback to tutors to ensure tutorials are fit for purpose. These one on one sessions seek discuss:

- What are you currently learning in class?
- Is there anything that you are finding hard or struggling with in your science classes?

Feedback from these sessions help to provide the Pūhoro team with a better understanding of what additional learning and academic support will be needed for the tutorials.

¹⁴ Kāhui Tautoko Consulting Limited. (2012) *Māori learners in workplace settings*

¹⁵ Tertiary Education Commission. (2013). *Doing better for Māori in tertiary settings*



A wānanga at Massey University is held every term. They are focused on career exposure (based around taura aspirations), alignment with NCEA provisions, and 21st century skills development. They include a variety of organisations and areas of STEM related subjects.

On campus, the students are separated into groups and they attend several different events and lectures throughout the day. These involve a mixture of presentations and hands-on sessions. Lunch is provided, and each student receives a Pūhoro pack for the day – stationary, snacks and information about speakers from members of the wider Pūhoro community.

3. Programme Results & Evaluation

In 2016, the first year of implementation, eight secondary schools from the Manawatū and Bay of Plenty regions participated in the Pūhoro programme. This included 97 Māori students and over 400 whānau members who represented at least 42 iwi throughout Aotearoa. Pūhoro delivered 124 tutorials and 45 mentoring sessions across eight schools.

The nationwide pass rate in 2016 for NCEA Physics AS90940 for the Pūhoro students was 76% compared to 74% for non-Māori. The Pūhoro students pass rate in NCEA Chemistry AS90944 was 87% in comparison to the nationwide pass rate for non-Māori which was 67%. Pūhoro students also achieved a 76% pass rate in NCEA Biology AS 90948 compare with 72% for non-Māori.

Pūhoro students not only reached parity of achievement but exceeded the nationwide pass rate of non-Māori students in the core science Achievement standards – Physics, Chemistry and Biology.



Achievement Standard	Group	Achievement		
		2014	2015	2016
Physics 90940	Māori	61%	59%	71%
	Non-Māori	72%	70%	74%
	Pūhoro	76%		
Chemistry 90944	Māori	58%	57%	62%
	Non-Māori	70%	68%	67%
	Pūhoro	87%		
Biology 90948	Māori	60%	61%	64%
	Non-Māori	67%	70%	72%
	Pūhoro	76%		

Pūhoro students also saw higher achievement with NCEA Endorsement (Merit and Excellence)¹⁶ than taura Māori who were not enrolled in the programme, and in Chemistry AS90944, their achievement was greater than non-Māori.



Evaluation of the programme occurs throughout different stages of delivery. Students can provide feedback during their Kaihautū sessions, tutorials and at the end of each termly wānanga, where a formal session for evaluation is held. During this session, all students complete the evaluation form and return it to the Pūhoro staff.

The programme staff are also involved in an evaluative process; critiquing processes, wānanga implementation and the programme design.

This approach enables staff to highlight areas of the programmes successes in engaging with taura Māori

¹⁶ [NCEA Endorsement](#)



and areas for improvement. A summary of feedback highlighted consistent themes;

- The excitement of participating in STEM with other rangatahi (youth) their age.
- Taking opportunities to share their knowledge with their peers.
- Learning from their peers.
- Having Māori science role models.
- Being provided with exposure into the breadth of career opportunities in science, technology and innovation.

Other comments from students and supporters within the Pūhoro community included:

'I became more confident about asking questions in Pūhoro and now I feel confident asking questions in my science classes'

'If I don't get something in class I can go to Pūhoro and learn it there'

'I definitely noticed a collegiality amongst the students, I think they feel proud to be part of the programme' – Teacher

'The Pūhoro programme is a great initiative for our region' – Adrian Broad, Palmerston North City Councillor

The NCEA achievement of the Pūhoro students and results from the evaluation its initial pilot year has been successful. There is an increasing number of taura Māori engaging in and succeeding in science programmes at secondary school. As the programme continues to evolve so will programme design, evaluation processes, relationships with taura, whānau, schools and the wider Pūhoro community.

4. Success Factors

The programme is underpinned by a learning community approach, and is aligned to critical success factors identified within 'Ka Hikitia' including strong engagement and contribution from parents, whānau, hapū, iwi, Māori organisations, communities and businesses.

This is fundamental because using an approach like this requires all participants to think differently about

teaching and learning for taura Māori. Which includes:

- Strengthening connections between the school, the students, whānau, Massey University, industry business and research organisations and future employers
- Developing stronger and more meaningful relationships with students and their whānau
- Creating an environment where Māori students could engage in group learning and peer to peer mentoring, and
- Facilitating whanaungatanga amongst Māori students.

Other key success factors of the programme include; the consistent weekly contact with individual Pūhoro taura and the taura understanding how their participation in the programme means that they have a responsibility to each other (*he waka eke noa*) and to the wider Pūhoro community. This factor alone has created the shared sense of unity, and commitment to achievement.

The programme in its first year was oversubscribed resulting in students and whānau being denied access to the programme but there is considerable scope to deliver this programme to a greater number of taura Māori and their whānau throughout a greater number of regions. Specifically, there is programme demand in Hawkes Bay, Gisborne, the greater Auckland region and the Bay of Plenty.

Currently the programme is funded by National Science Challenges, the University, Te Tumu Paeroa and the New Zealand Qualifications Authority. In 2016, Massey University pledged an investment of \$1 million over four years. However, ongoing programme sustainability, and growth, relies on partner investment. This is essential to this programme so that improved outcomes for Māori can continue to be realised.

The Pūhoro Academy is supporting a new wave of Māori STEM champions who will have a considerable impact on Māori economic development, STEM innovation and Māori leadership in the future.



For more information

- Pūhoro STEM Academy
http://www.massey.ac.nz/massey/learning/colleges/college-of-sciences/students/puhoro-stem-academy/puhoro-stem-academy_home.cfm
- Facebook: <https://www.facebook.com/puhoro/>

Pūhoro STEM Academy

Email: puhoro@massey.ac.nz

Pilot Programme Cohort





Case Study Tuatoru: University-Wide Initiative University of Auckland: Tuākana Learning Community

Programme Aim: A learning community aimed at enhancing the academic success of Māori and Pacific students attending the University of Auckland.

- Achievements:**
- Programme participation 78% in 2016
 - The programme is contributing directly to retention and post-graduate participation rates. Since 2010 retention rates for Māori students have increased from 69% to 85%.
 - The Tuākana programme has been delivered for several years at the University of Auckland. It is a fully integrated community of learning throughout the institution.

Evaluated: Yes

1. Background

The foundations for the Tuākana programme began in the early 1990s, with discussions around ways to better attract and retain Māori and Pacific students into the sciences. Professor Michael Walker in the School of Biological Sciences, led the implementation of support initiatives that were developed, and from there the early stages of the Tuākana programme started to take shape.

These first iteration of the programme was support tutorials for students conducted variously by staff and high-achieving students who were employed as part-time tutors. These activities influenced subsequent actions aiming to enhance the academic performance of Māori and Pacific students and the results were several school and departmentally run initiatives being established that offered support specific to the unique curriculum needs and learning styles of their academic programmes.¹⁷

These programmes, though independently run, were unified by the desire to foster a sense of community that engaged Māori and Pacific students and helped them to realise their potential and ability to succeed. There was an immediate 20% increase in pass rates at year end for Māori students when the first iteration Tuākana started in 1991.¹⁸

As an additional outreach programme, the Tuākana programme operated from 2001 to 2007 in two south Auckland schools. Successful first year biological sciences students who had attended these schools and who had participated as Teina in the university Tuākana programme went back into these schools to act as Tuākana. This programme led to dramatic growth in the numbers of students from the schools attending university, from an average of less than one student per school per year before the programme began, to 15 per year in 2008. The outreach section of this programme ceased when funding ended in early 2008.¹⁹

As it stands now the programme has developed into a University-wide learning community, enhancing the academic success of Māori and Pacific students attending the University of Auckland. This is a voluntary programme, and an average of 78% of eligible Māori and Pacific students engaging with the programme.

The university believes this programme plays a significant role in supporting key equity objectives from the University's Strategic Plan:

- **Objective 1:** A work environment characterised by a commitment to clear expectations, development of potential, inclusiveness, high achievement and rewarding performance.
- **Objective 7:** A high quality learning environment that maximises the opportunity for all our students to succeed and provides them

¹⁷ [Tuia te Ako Conference, Keynote \(2012\)](#)

¹⁸ University of Auckland, Report to Te Kāhui Amokura (2017)

¹⁹ [Celebrating 25 Years of Tuākana in Science](#)



with an inclusive, intellectually challenging and transformative educational experience.

- **Objective 11:** Partnerships in which the University and Māori work together to achieve their shared aspiration.²⁰

2. Programme Overview

The Tuākana programme is based around the principles of the Tuākana-Teina relationship model which is integral part of Māori society. In this context it is a buddy system where an older or more experienced tuākana (brother, sister or cousin) helps and guides a younger or less experienced teina (originally, a younger sibling or cousin of the same gender). In a learning environment, the tuākana-teina roles may be reversed at any time. Other key values which align with this model include; 'ako' (reciprocity), 'whakahoki' (giving back), 'manaakitanga and 'tautoko (support).

The Tuākana are highly visible role models (generally from similar backgrounds to the teina) who have been selected by their faculty. In nearly all cases these individuals are paid to be mentors and tutors. They are supported through training, and are required to attend an orientation in which they aim to help the



Tuākana:

- Understand the context they are working in.
- Understand the Tuākana Learning Community – Kaupapa, Tikanga and Values.
- Know what support is available for their Teina within the university.
- Gain an understanding of generic skills needed for mentoring/tutoring.

Teina

- Know who to contact if they are needing support.
- Relate to the faculty and university and feel connected.
- Provided academic and learning support throughout the duration of their studies.
- Develop their networks within the University.

Every faculty and department has developed and contextualised the concept of Tuākana to meet their own needs and to develop their own programmes, and are generally led by one or two coordinators in conjunction with a senior departmental staff member. They also provide training for the tutors and mentors around the specific role that they will have within their faculty. There are also often dedicated spaces for Tuākana taura which are equipped with computers, and facilities for coffee and tea.

Most faculty Tuākana programmes offer small-group learning, whanaungatanga, wānanga, and academic learning skills workshops. A consistent focus across the university faculties is targeting first year Māori students, to provide them with a first point of contact to enable them to access their support networks quickly. A considerable effort is put into contacting all taura in the first few weeks of the semester. This is a critical success factor for the programme.

As a new initiative for 2017, within the Faculty of Science, research programmers and the computer science department have developed a Tuākana App to help assist the Māori and Pasifika students with access to up-to-date information including – tutorial times, and news and events.²¹

As an extension of the programme the university has also offered several scholarships for students who are in their final year of study and considering moving into post-graduate study. Stemming from an increase in demand for additional support at a post-graduate level, and although there is a primary focus on new

²⁰ University of Auckland, Strategic Plan 2013-2020

²¹ [Tuākana Science App](#)



students, the University now also provides Tuākana support for post-graduate taura and there is a contestable fund for them to apply for financial support to attend conferences etc.

The programme in its entirety is funded through the Tertiary Education Commission Equity Funding which is managed centrally by the University Equity Office. They use a contestable funding approach, which is supported by a select committee who make the decisions. Faculties and departments must apply for funding and must provide achievement and evaluation reports. Quite often faculties are providing additional financial support from their own budgets as well.

3. Programme Results & Evaluation

The University of Auckland's experience suggests that participation in the Tuākana Learning Community has contributed to several positive outcomes for Māori. Across the University, approximately 78% of Māori students in 2016 were participating within the programme and the undergraduate course completions of Māori students was 85% a marginal increase from 84.3% in 2015. The rates for total students increased marginally, from 87.4% in 2015 to 88.0% in 2016.²²

Another evaluative report of the programme conducted by the University suggested that it is also contributing directly to retention and post-graduate participation rates. The retention of taura Māori across the University increased from 69% to 85% in 2010. There was also an increase in the proportion of Māori students enrolled in postgraduate studies from 15% in 2005 to nearly 17% in 2010.

There was also an increase in the proportion of taura Māori who enrolled in postgraduate studies in 2005. This figure was 15% but by 2010 this number had increased to 17%.

University wide annual surveys conducted by the Equity Office of the Tuākana mentors and tutors found that participating in this programme *'improved their own tutoring and teaching skills, their learning, enhanced relationship and people skills and improved time management and organisational skills'*.²³

Faculties are responsible for ensuring their individual Tuākana programme results are monitored and that

their programmes are evaluated. A report is then provided to the Equity Office, and an evaluation of these reports is conducted. Across the faculties, evaluation looks like a combination of online survey's, interviews with Tuākana students and sessions held with mentors to gather qualitative data around the programmes successes and areas for improvement.

The Tuākana programme has been active across the University of Auckland for several years. That alone, is an indicator of its successful integration of a learning community throughout an institution. Taura Māori across the University are aware of this programme.

4. Success Factors

Tuākana is a learning community which focuses on enhancing the academic success of taura at the University of Auckland. Contribution to the success of the programme include several elements that ensure its success:

- Quality training for Mentors using a Kaupapa Māori Framework to provide support for mentors and tutors to ensure they are using culturally appropriate pedagogies and academic and learning support.
- A focus on ensuring both the Tuākana and Teina gain from their involvement in the Learning Community.
- Faculties are charged with the adaption and implementation of the programme to suit their distinctive needs.
- Mentors are in paid positions.
- Tuākana database – coordinators have access to the taura's class lists, and historical data to aid analysis and communication with participating taura and across the institution.
- Early contact being made with taura and relationship building at the start of academic year.
- Sustainability of programmes within faculties through a contestable funding model.
- Central office (Equity Office) for the distribution of funding and overall Tuākana evaluation and reporting.

It is a combination of these factors and the collective effort of many staff and students across the university

²² Equity Report, 2016 provided to Te Kāhui Amokura. (2017)

²³ Tuākana Report, provided to Te Kāhui Amokura, (2017).



that see this programme continuing to strive towards success for those who require additional support.

For more information

Faculty Tuākana programmes are based in the following faculties;

- Arts; tuakana.arts@auckland.ac.nz
- Business; tuakana.business@auckland.ac.nz
- Education and Social Work;
tuakana.education@auckland.ac.nz
- Engineering;
tuakana.engineering@auckland.ac.nz
- Law; tuakana.law@auckland.ac.nz
- Medical and Health Sciences;
tuakana.fmhs@auckland.ac.nz
- NICAI; tuakana.nicai@auckland.ac.nz
- Science; tuakana.science@auckland.ac.nz

Tuākana Learning Community
[Equity Office – Te Ara Tautika](#)



Case Study Tuawhā: Targeted Admission Scheme University of Auckland: Māori and Pacific Admission Scheme (MAPAS)

Programme Aim: The MAPAS programme aims to help students successful transition into university, and to begin their pathway to a career in health.

- Achievements:**
- Multi Mini Interviews assist the university to better understand the individuals academic and pastoral needs
 - Research through this programme has found that using a combination of both cognitive and non-cognitive tolls to assist MAPAS admission recommendations can be successful indicators for assessing academic potential for success.
 - Students who followed MAPAS advice were 5 times more likely to pass all courses in their first year of tertiary study.

Evaluated: Yes – substantial evidence (Data, Research)

1. Background

The Māori and Pacific Admission Scheme (MAPAS) has operated at the University of Auckland since 1972. It is a targeted entry admission pathway into the Faculty of Medical and Health Sciences (FMHS) programmes. In addition to entry, the programme provides wrap-around academic and pastoral support within courses.

This scheme is an integral part of the faculty's commitment to the Treaty of Waitangi. As part of the FMHS 'Vision 20:20'²⁴ strategy to increase the number of Māori and Pacific health professionals to 10% of the health workforce by the year 2020. The MAPAS programme aims to help students successful transition into university, and to begin their pathway to a career in health.

Alongside this, there are also two other initiatives which focus on recruitment (Whakapiki Ake Project)²⁵ and a foundation programme (Hikitia Te Ora)²⁶.

'Te Kupenga Hauora Māori' (TKHM) represents the Department of Māori Health and the Office of the Tumuaki (Deputy Dean Māori) within the FMHS at the university. The admissions processes and Vision 20:20 programmes are supported, managed and operated by TKHM on behalf of the faculty.

Historically, the programme was designed around an interview between the applicant (and whānau if

participants would like) and a panel of Māori and Pacific academics, health sector and community representatives. During this interview, the participants showed evidence of their commitment towards their culture, and their secondary schooling results.

A significant review of the programme took place in 2006 due to academic performance concerns of the students. It was decided that an overhaul was required for the programme. There were also broader concerns regarding the MAPAS interviews because of the value-laden nature of the cultural assessment being conducted within the interview and potential for variation across interview panels.

After that review, a 'rights-based model' was introduced to acknowledge a student's commitment to their cultural journey and the following specific admission changes were made:

- MAPAS eligibility to be determined by verification of whakapapa or ancestry. This removed any judgement of a student's positioning along their cultural journey and provided access for all indigenous Māori and Pacific students based on ancestry.
- Introduction of a process to determine the appropriate academic starting point for health study via a 'General MAPAS Interview' consisting of:
 - A multiple mini interview (MMI) to assess exposure to science (e.g. chemistry, biology

²⁴ [Vision 20:20](#)

²⁵ [Whakapiki Ake Project](#)

²⁶ [Hikitia te Ora – Certificate in Health Sciences](#)



and physics), career aspirations, communication skills and self-perceived family support.

- A mathematics test to assess basic numeracy skills for foundation or degree-level study.
- An English test to assess basic literacy skills for foundation or degree-level study.
- Evaluation by a MAPAS team knowledgeable of programme requirements who review above test results findings and provide advice for academic feedback based on what is considered to be the best starting point for success.²⁷

MAPAS as it stands today continues to support transition and retention of taura through their cultural and educational journey to successfully complete and graduate at university.

2. Programme Overview

MAPAS operates an equity-targeted admissions process for applicants with indigenous Māori and Pacific ancestry. The general interview process aims to gather a broad range of information about a Māori and Pacific applicant in preparation for tertiary health study. From there, the MAPAS team can identify the best starting point for the student – Direct entry into degree programme, Certificate of Health Sciences, or not currently suitable for the FMHS, which often means additional foundational support is needed.

Students must apply to be a part of this programme. Once they have filled out the application material, the student and their whānau are invited to attend a general interview. Students are eligible for the programme if they:

- Have verified indigenous New Zealand Māori or Pacific whakapapa / ancestry, and
- Are a citizen or permanent resident of New Zealand, and;
- Have applied for entry to a FMHS programme.²⁸

The general interview process normally occurs in December prior to the next academic year. The interview settings take place on the University campus, and the student and their whānau are welcomed with a Mihi Whakatau. This sets the whānau-targeted tone for

the entire event, and the University also use this as an opportunity for other activities including; presentations on the University, tours of the campus, and meeting staff.

During the general interview students move through several cognitive and non-cognitive tasks. Multiple Mini Interview (MMI) stations are set up for short one on one interviews. Each interview has a different focus – career aspirations, prior achievement (including subjects taken at secondary school), whānau support, and information about themselves. Students are also required to take an English and Mathematics test. Both are to assess a student's basic numeracy and literacy skills. The use of a combined assessment approach is intended to provide a holistic view of the potential of academic success.²⁹

During these processes, the interviewers are looking at the following fundamental areas:

1. The 'potential' to succeed within the Hikitia Te Ora - Certificate Health Science (CertHSc)
2. The 'potential' to succeed within a degree-level programme
3. Not FMHS – students are advised to study in a programme outside of FMHS (Students who often do not have NCEA Level 3 or equivalent).

At the end of the process, the data is collected and analysed by the MAPAS team and a provisional assessment is made. That same day each applicant and their whānau are also offered an individualised feedback session to explain the results. Once the students secondary school results are released in January a final MAPAS recommendation is made to the student.

Successful entry into this programme sees both a range of academic and pastoral support provided. A key provision of academic support includes the tracking and monitoring of academic success, group tutorials for specific courses, reserved study space and computers and study wānanga supported by the Student Learning Services Team. Pastoral support includes access to a MAPAS student advisor for each FHMS programme. This individual helps students to access key support services available across the university.

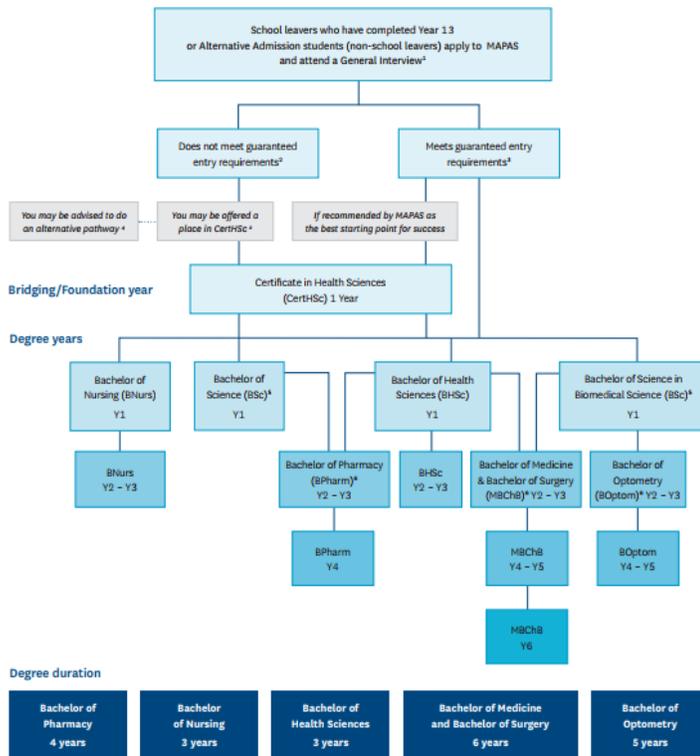
²⁷ Challenges and Success of the Vision 20:20 programme, (2012).

²⁸ [MAPAS Eligibility](#)

²⁹ Curtis et al. International Journal for Equity in Health (2015) 14:7 DOI 10.1186/s12939-015-0133-7



FMHS health pathways



A total of 368 students were researched as a part of the 'first-year tertiary'³¹ cohort – 37% Māori, 57% Pacific and 6% were both Māori and Pacific. Another 242 'first-year bachelors'³² taura who shared similar demographics were also reviewed.

The results found that 'NCEA Rank Score' (which is based on a taura's best 80 credits at NCEA L3 or higher and calculated through weighting award points on the level of achievement) and the following variables are all strongly associated with an increase in the *First Year Tertiary GPA*. These variables include: *MAPAS Advice Followed*; *Exposure to Any Two Sciences - Biology, Chemistry or Physics* and *MAPAS Mathematics Test*.

In addition, the odds of passing all courses in *First Year Tertiary* study was 5.4 times higher for students who *Followed MAPAS Advice* and 2.3 times higher with *Exposure to Any Two Sciences*.

First Year Bachelor students who *Followed MAPAS Advice* had an average GPA that was 1.1 points higher for all eight courses over the year and the four core courses CHEM110 (Chemistry of the living world), POPLHLTH 111 (Population Health), MEDSCI142 (Biology for Biomedicine Science: Organ Systems) and BIOSCI (Biology for Biomedicine Science: Cellular Processes and Development).³³

3. Programme Results & Evaluation

The success of the MAPAS programme has been well documented since its inception by the FMHS. Their research has found that by using a combination of both cognitive and non-cognitive selection tools to assist, MAPAS recommendations can be successful indicators for assessing academic potential for success. They also encourage institutions to shift their focus from participating taura numbers to ensuring indigenous student success.

The predictive effect of the programme was explored by the faculty through their research project '*Quantitative analysis of MAPAS on first-year health study*'.³⁰ This evaluative study using generalised linear regression models looked at cohorts who went through MAPAS from 2008-2012, and the effectiveness of the entry programme recommendations in relation to academic outcomes in their first year of tertiary study.

³⁰ [Quantitative analysis - MAPAS](#)

³¹ *The first year in which a student enrolls in a form of study provided by the institution (CertHSc or bachelors)*

Throughout the year the programme is evaluated by the MAPAS team. Taura are provided an opportunity to feedback into the programme through various channels – surveys and feedback to programme coordinators.

4. Success Factors

MAPAS is one of three key initiatives running throughout the FMHS that contribute towards *Vision 20:20*. Over the years of its delivery MAPAS has identified several areas that contribute to its ongoing success of its taura:

- Enhanced admissions processes that take account of broad competencies

³² *The first year in which a student enrolls in tertiary at L7*

Bachelors

³³ As above



- The MMI process helps the University to better understand the individuals academic and pastoral needs.³⁴
- Use of Māori role models and mentors.
- Endorsement of Māori values and cultural development opportunities and support for a culture of success.
- Fostering of student cohesiveness.
- Provision of Indigenous Academic Leadership - at a faculty, university and community level promoting the importance of equity programmes.
- Data Management – specific MAPAS database to capture appropriate student information for the programme.
- Celebrating successes – MAPAS Graduation ceremonies for taura and their whānau.
- Alignment of support model to foster independent learning.

Currently the programme is funded through Equity Funding from the Tertiary Education Commission (TEC) and additional investment from the university. Sector funding is not secure and removal of the funding that supports Māori and Pacific student success would significantly limit the range and scope of interventions that can be delivered by the Vision 20:20 programme.³⁵

The MAPAS admissions programme provides a good practice example for other tertiary institutions looking to widen participation via equity-targeted admission processes.

For more information

- Māori and Pacific Admission Scheme ([MAPAS](#))
- *Quantitative analysis of a Māori and Pacific admission process on first-year health study.* E. Curtis, E. Wikaire, Y.Jiang, L.McMillian, R.Loto, A. P. Reid. (2015). BMC Medical Journal.
- [MHO4](#) – This form collects the information that helps to determine eligibility for MAPAS and assists MAPAS to provide effective student support services.

³⁴ [Medical Student Selection in New Zealand: Looking into the future. \(2010\).](#)

³⁵ Approximate MAPAS funding (\$280K). To be confirmed.

