

# **Te Whakapuāwai – A Programme to Support Māori Student Transition and Achievement in Health Sciences**

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## **Abstract**

*In 2011 the University of Otago's Māori Health Workforce Development Unit (MHWDU) implemented a new intervention programme called Te Whakapuāwai. The aim was to increase Māori (indigenous to New Zealand) student achievement in the challenging Health Science First Year course (HSFY), and to address the low number of Māori entering into 'restricted' entry health professional degree programmes at the University of Otago. Outcomes analysis of Te Whakapuāwai, suggests that the intervention has directly contributed to the significant increase in the number of Māori students progressing through HSFY and entering into restricted entry courses. In this paper, the culturally-responsive, evidence-informed and strengths-based theoretical and operational framework guiding the intervention is explained and an overview of outcomes is provided. We then describe how and why the intervention was enhanced for 2014 to build on understandings about metacognition, Mindset Theory and peer supported learning, and achieve more equitable outcomes for Māori HSFY students. Our knowledge goal is to identify strategies to improve the student experience and achieve more equitable outcomes for underrepresented students in university study.*

## **OVERVIEW**

In 2011 the University of Otago's Māori Health Workforce Development Unit (MHWDU) designed and implemented a new intervention programme called *Te Whakapuāwai*. The aim was to increase Māori (indigenous to New Zealand) student achievement in the academically challenging Health Science First Year course (HSFY), and to address low numbers of Māori entering into restricted entry health professional degree programmes including medicine, physiotherapy, dentistry, medical laboratory science and pharmacy, at the University of Otago. Outcomes from *Te Whakapuāwai* indicate it has been a highly successful programme for first year Māori students, directly contributing to increased numbers of Māori students achieving in HSFY and entering health professional programmes.

This paper presents the rationale for and development of *Te Whakapuāwai*. We provide an outline of the design and implementation of the intervention and an analysis of Māori student academic outcomes before and after its introduction. We discuss recently designed enhancements to *Te Whakapuāwai* that aim to further improve academic outcomes and increase the diversity of Māori students entering into health professional programmes at the University of Otago, including those from lower socio-economic backgrounds. This paper details the journey of a 'work in progress,' we share the development of *Te Whakapuāwai* as an evolving culturally-responsive and strengths-based intervention. We highlight the importance of drawing on data and existing research to inform new interventions and detail how comprehensive programme evaluation can assist in adding value to existing projects.

## **Context: University of Otago, Health Sciences First Year**

Health Sciences First Year (HSFY) is a popular choice for many of Otago's first year students, with at least 1200 students per annum enrolling into the course. HSFY is a competitive and demanding first year academic programme (Jameson & Smith, 2011) from which successful students are accepted into the health professional degree programmes. To gain admission into a professional programme, HSFY students must meet minimum grade requirements and pass all seven core science papers that comprise the HSFY course (alongside a number of other criteria specific to each professional degree programme); ([www.otago.ac.nz/healthsciences](http://www.otago.ac.nz/healthsciences)).

The number of Māori students in HSFY each year varies, with around 100 Māori students entering into the course annually up until 2013. More recently (in 2014 and 2015) the number of Māori students has increased to around 150 students per year. To be eligible for entry into the HSFY course students must hold a New Zealand University Entrance Qualification (UE). It is strongly recommended that HSFY students have studied physics, chemistry and biology in their senior years of secondary school, however, this is not a mandatory requirement ([www.otago.ac.nz/healthsciences](http://www.otago.ac.nz/healthsciences)). *Te Whakapuāwai* was developed by the MHWDU to better support Māori HSFY students to successfully progress through this rigorous academic course and gain entry into health professional degree programmes at the University of Otago.

'*Te Whakapuāwai*' translates as 'to make flourish' and refers to the intention of the programme to increase Māori student retention and achievement in HSFY. Programme objectives align with the New Zealand Government's *Raranga Tupuake: Māori Health Workforce Development Plan 2006*, to increase the Māori health and disability workforce in Aotearoa New Zealand, and the *Tertiary Education Strategy 2010-2015*, to increase the retention and achievement of Māori students in higher education in New Zealand. Currently Māori are significantly under-represented across health professions and experience higher morbidity and mortality compared against all other ethnic groups (Ratima et al., 2005).

Educational outcomes for Māori are also grim. Māori are less likely to complete secondary school and enter into higher education when compared to non-Māori (Robson & Harris, 2007, pp. 21-22). *Te Whakapuāwai* was developed with the expansive focus of addressing health workforce disparity and contributing to positive socio-economic and educational outcomes for Māori in New Zealand.

## **Māori Health Workforce Development Unit**

The MHWDU was established in 2010 and is positioned within the Division of Health Sciences at the University of Otago. The MHWDU is supported with co-funding from the New Zealand Ministry of Health and comprises a growing team of diverse Māori staff with broad expertise. MHWDU programmes support nearly 600 Māori Health Sciences students at the University of Otago and deliver a range of programmes including outreach programmes recruiting Māori into health sciences study.

## **What was the intervention? *Te Whakapuāwai***

Māori values and principles underpin all aspects of programme design and approaches to programme delivery for *Te Whakapuāwai*. This strengths-based approach is integral to supporting Māori students and existing research outlining strategies to improve academic outcomes for Māori learners supports this (Bishop, Berryman, Cavanagh, & Teddy, 2007;

Bishop, O'Sullivan, & Berryman, 2010; Chauvel & Rean, 2012). A strengths-based approach entails maintaining a belief that 'being Māori' is a strength that Māori students share and that connects them. We believe all students are capable of managing study and having a positive experience in the university environment and that the environment must be culturally affirming and responsive. New Zealand research highlights the need for institutions to move away from 'integration' or 'assimilation' models that require students to adapt to 'fit' the institution (Zepke & Leach, 2005). *Te Whakapuāwai* aimed to create a sense of belonging and positive first year experience where Māori students would feel welcomed and well supported. Programme development was also informed by collaboration with other student support services and a comprehensive understanding of the HSFY course and the perceived challenges Māori HSFY students faced.

### **What did we do? *Te Whakapuāwai* programme design**

Theoretical and operational frameworks guided our programme delivery. The intervention aimed to provide the following (to all students who identified as Māori and were enrolled in HSFY):

- *Whakawhanaungatanga* – fostering a sense of family and community amongst Māori students working together to achieve goals and having a wide peer support network
- *Manaakitanga* – providing hospitality and fostering mutual respect
- *Ako* – reciprocal teaching and learning
- *Mana motuhake* – Empowering students to have a positive university experience
- Early support with the transition into HSFY and the University of Otago
- A strengths-based (culturally affirming/ non-deficit/ non-remedial approach)
- Increased academic support (such as tutorial assistance) and funding
- 'Myth busting', providing accurate information to Māori HSFY students about HSFY
- Timely and tailored information and guidance
- Course advising, advice about admission into health professional degree programmes, promotion of health careers and health related study opportunities
- Access to staff (email, cell phone)

A comprehensive evaluation plan (process and outcomes) was built into programme design and included retrospective analysis of Māori HSFY student progression and admission into professional degree programmes dating back to 2007. Tracking and monitoring Māori HSFY student progression through HSFY and into professional degree programmes pre and post the delivery of *Te Whakapuāwai*, has provided foundation data for the MHWDU to measure the potential efficacy of the intervention in achieving its intended aims. Our analysis showed that *Te Whakapuāwai* was both effective and cost effective to implement. The major requirement was staff time working with the Māori HSFY student cohort as a group and also as individuals. Encouragement for students to work together and motivate one another were frequently repeated messages.

### **What was the impact of *Te Whakapuāwai*?**

Table 1. presents the number of Māori students in each HSFY cohort and the number of Māori HSFY students gaining entry into a health professional degree programme from each cohort. The table outlines Māori HSFY student progression into health professional programmes pre and post the delivery of *Te Whakapuāwai*.

	Pre – Intervention		<i>Te Whakapuāwai Intervention</i>		
Year of HSFY	2009	2010	2011	2012	2013
Number in HSFY	N=89	N=70	N=95	N=76	N=106
Number taking up places in health professional programme in HSFY +1 (year following HSFY)					
Medicine	17.4%	24.2%	34.7%	39.4%	30.1%
Dentistry	2.2%	-	2.1%	5.2%	3.7%
Med Lab Sci	-	-	3.1%	1.3%	-
Pharmacy	2.2%	2.8%	3.1%	1.3%	1.8%
Physiotherapy	3.3%	1.4%	3.1%	2.6%	6.6%
<b>Total % of cohort gaining entry into a health professional programme</b>	<b>25%</b>	<b>29%</b>	<b>46%</b>	<b>50%</b>	<b>44%</b>

**Table 1. No. of Māori students gaining entry directly into a University of Otago professional programme in year following HSFY**

Table 1 (Outcomes analysis) shows a marked increase in the number of Māori successfully progressing through HSFY and gaining entry into ‘difficult to enter’ health professional degrees compared to previous years. The number of Māori students entering medicine in 2012 was significantly higher than previous years (2008-2010). In the years 2011-2013 following the delivery of *Te Whakapuāwai* nearly half of each cohort of Māori HSFY students has gained entry into a health professional degree programme the following year.

Qualitative feedback from Māori HSFY students was positive, students reported feeling well supported and well informed by staff, as illustrated in the following statement,

*They [staff] would remind you what you need to do, and don't listen to anybody and what they're saying, keep on going. Don't forget that you are doing this not only for you but for your whānau [family]... Those little things that was nice. It made you feel that they actually really want you to actually achieve your goals and make sure that you can continue with what you want and make you achieve everything that you want (Māori HSFY student, 2011 cohort).*

Staff availability was also highlighted as valuable by students, “...what I like [is that] you know that somebody is there for you no matter what state you're in” (HSFY student, 2011), students were provided staff cell phone and email addresses and felt this enhanced the pastoral and academic support. Many students appreciated the opportunity for the *whakawhanaungatanga* that the programme provided, with one student reflecting that “the connection between the students is one of the strengths of the programme” (Māori HSFY student, 2011). Tutorials and academic advising were viewed as invaluable for progressing through the HSFY, “I would have never have passed HSFY if it wasn't for [the Academic

Coordinator] and the tutorials” (HSFY student, 2011). “I think the tutorials are better than the lectures” (Māori HSFY student, 2011).

### **The challenge**

The MHWDU maintain comprehensive data about Māori student progression through Health Sciences study which is used for planning, tracking student (and programme) progress, monitoring trends and informing quality improvement. Our outcomes analysis identified that although there was a demonstrable increase in the number of Māori students entering into health professional degree programmes directly from HSFY after the intervention, not all Māori HSFY students were enjoying the same levels of academic success, with more poor outcomes for Māori students from lower socio-economic backgrounds, and / or lower decile schools. In New Zealand school decile “...indicates the extent to which it [the school] draws its students from low socio-economic communities. Decile 1 schools are the 10% of schools with the highest proportion of students from low socio-economic communities. Decile 10 schools are the 10% of schools with the lowest proportion of these students” (New Zealand Ministry of Education 2010). The New Zealand Deprivation Index (NZDep) is another indicator used by the MHWDU to estimate student’s socio-economic background (also referred to as socio-economic status or SES); (Salmond, Crampton, & Atkinson, 2007). Data collated using NZDep and school decile provided an approximation of the levels of deprivation Māori HSFY students might be experiencing (their SES), this data revealed that although there were higher numbers of Māori HSFY students who had attended higher decile schools (deciles 5 and above) across all Māori HSFY student cohorts, a disproportionate amount came from geographical areas and suburbs that experience higher levels of deprivation.

### **Why is this data significant?**

A goal of the Division of Health Sciences is for students entering into and graduating from health professional programmes to ‘mirror society’, that is to adequately reflect the socio-demographic profile of New Zealand society in age, gender, socio-economic status and ethnicity (Crampton, Weaver, & Howard, 2012). The MHWDU are committed to this goal and aim to see the diversity of Māori society reflected within the Māori student body and graduates from Otago. Currently Māori students, and students from socio-economically disadvantaged backgrounds are underrepresented. Compounding this is the less successful progression of disadvantaged students *through* university study. This trend is similar to that seen nationally (Gibb, Fergusson, & Horwood, 2012) and internationally (O’Shea, 2011).

Analysis of the MHWDU data pertaining to HSFY Māori student outcomes in the years prior to and following the implementation of *Te Whakapuāwai*, shows that students who attended lower decile schools (deciles 4 and below) were significantly less likely to pass all four HSFY first semester papers (and consequentially be eligible for entry into a health professional programme) when compared with those students who attended higher decile schools. Building on this knowledge, our team identified that although the existing *Te Whakapuāwai* programme had contributed to many positive outcomes for Māori learners, more work was needed to better understand and address how we could improve outcomes for learners from more deprived socio-economic backgrounds.

### **Refining and enhancing *Te Whakapuāwai***

Based on insights gained from process and outcomes analysis, the MHWDU began researching potential ways to achieve more equitable outcomes for Māori HSFY students and increase both the number *and diversity* of Māori students. Following an extensive literature review we explored a variety of interventions evidencing success in first year, indigenous, minority and / or low SES student retention and academic achievement in health that would enhance the effectiveness of the existing *Te Whakapuāwai* programme. New components were integrated into *Te Whakapuāwai* based on the literature, phenomenological experience, extensive student consultation and programme evaluation. A variety of ideas, theories, initiatives and approaches were considered from among those that were strengths-based (non-deficit), evidence-informed and aligned well with the existing Māori-centred *Te Whakapuāwai* intervention. New programme objectives were also developed for the enhanced intervention to guide programme design, delivery and evaluation.

### **The enhanced model: Te Whakapuāwai**

#### *Objectives:*

- i. To increase the number and *diversity* of Māori students successfully progressing through HSFY and into health professional degrees at the University of Otago.
- ii. To maintain a specific equity focus, ensuring more positive outcomes for socio-economically and or educationally disadvantaged students.
- iii. To advance understanding of best practise including when addressing structural disadvantage, institutional and cultural responsiveness and student learning theory specific to Māori learners.
- iv. To disseminate knowledge of critical success factors and effective methods for increasing Māori student learning development, achievement and retention in a manner that is accessible for others (practitioners, students, whānau, organisations).

#### *What did the literature tell us?*

There is overwhelming evidence for the positive impacts of a number of psychological interventions and approaches which can elicit significant impacts on learner outcomes, retention and completion rates (Yeager & Walton, 2011). We constructed our intervention as multi-dimensional and holistic, incorporating the most appropriate and effective of these approaches / theories whilst maintaining the original ‘bones’ of *Te Whakapuāwai*. We included approaches drawn from Mindset Theory, self-efficacy and metacognition.

Mindset theory aligns well with the strengths-based/Māori framework approach. Mindset theory disputes preconceived notions of ‘intelligence’ or ‘talent,’ instead recognising an individual’s capacity to ‘grow’ their intelligence. The literature was clear that if we could work with students to develop/maintain a ‘growth mindset,’ academic outcomes would likely improve. “There is increasing evidence that mindsets can play a key role in the underachievement of women and minorities in math and science...” (Dweck, 2008). Conversely, interventions that change mindsets suggest a positive impact on learner motivation, exam results and resilience (Dweck, 2008, 2012; Fegley, 2010; Sriram, 2010; Yeager & Dweck, 2012; Yeager, Paunesku, Walton, & Dweck, 2013).

Self-efficacy is described by Albert Bandura as “...the belief in one’s capabilities to organize and execute courses of action required to produce given attainments” (Bandura, 1997, p. 25). Self-efficacy influences the development of effective metacognitive strategies and aligns with the strengths-based/Māori framework. This links to other constructs such as Metacognition

and Self-regulated learning. Metacognition is ‘thinking about thinking’ (Lai, 2011). A self-regulated learner is described as someone that regularly assesses their learning strategies and develops new strategies (building on existing knowledge and feedback) to master new tasks. The enhanced *Te Whakapuāwai* programme encourages students to become ‘agentic’ in their learning (autonomy), work towards mastery (through effective self-review) and have purpose (goal setting and orientation) which entailed being very clear about expectations for students to be active and reflective about their learning (Zimmerman & Moylan, 2009). The evidence-informed theoretical framework underpinned all aspects of the enhanced intervention and guided aspects of each component. The Māori-values-based approach remained unchanged and is a critical component of the enhanced intervention.

### Enhanced intervention: Programme components

Table 2 (below) provides an overview of new programme components included into the existing *Te Whakapuāwai* intervention. The table describes what group or individual support for students was designed for inclusion in the enhanced intervention.

Group Components	Individual Components
Evidence-informed theoretical framework	Evidence-informed theoretical framework
Early contact and guidance with transition into HSFY and Otago	
Motivation and ‘Mindset’ workshops	Individual learning assessment pre and post the intensive study skills component (known as SWAT)
Peer Educator (Tuākana) training (training previous Māori HSFY students to facilitate metacognitive development/ accelerated learning programme (SWAT))	Streaming into additional tutorials for all subjects based on self-identified level of previous subject exposure
A comprehensive induction into the programme for all Māori HSFY students	Individual Goal Setting/ ‘check in’ interview academic week 1, including a <i>hauora</i> (wellbeing) component
6-week peer facilitated metacognitive development/ accelerated learning programme (SWAT)	Individual Goal Setting/ ‘check in’ interview post mid terms including a <i>hauora</i> / (wellbeing) component
Study <i>wānanga</i> (extended group study workshops) - pre mid-term and final exams with subject specific tutor support	Ongoing individual support and course advising for admissions into professional programmes including degree planning
Ongoing group support and guidance – opportunities for course advising, fostering communities of learning and academic excellence	Semester 2 course advising and assistance
End of year degree planning for following year	End of year degree planning for following year

**Table 2. Group and individual components added to existing *Te Whakapuāwai* Māori HSFY support programme**

The enhanced intervention increased opportunities for students to engage at group and individual levels. A comprehensive evaluation plan was designed to monitor the programme’s effectiveness in achieving objectives. The evaluation plan comprises analysis of nine years of data, comparing outcomes for Māori HSFY students involved in the enhanced intervention

against Māori HSFY students in the years 2008-2010 prior to any intervention, and 2011-2013 *Te Whakapuāwai* intervention and 2014-2016 following delivery of the enhanced *Te Whakapuāwai* programme. Māori academic outcomes will also be compared against non-Māori cohorts in the years 2011-2016 to examine whether increases in Māori student achievement and progression is unique to Māori HSFY students or whether there have been increases for each domestic HSFY student cohort in the same time period.

### Enhanced intervention delivery

In 2014 there was a large increase in Māori HSFY students (N=139) creating challenges in working with students individually. Regardless, in 2014 all Māori HSFY students were contacted early and attended an induction incorporating Mindset theory and motivation. The majority of these students met an MHWDU staff member for a one-to-one ‘check-in’ to discuss their transition into Otago, strategies for study and their overall wellbeing. Students were streamed into tutorials and provided with information about the course and admissions requirements for health professional programmes. Peer Educators (called Kaihautū) were trained to deliver a 6-week course aimed at accelerating Māori HSFY students metacognitive skills, study strategies specific to the HSFY course and exams, and maintaining students overall motivation for HSFY. The 6-week component (called SWAT) provided training to 12 Kaihautū and delivered weekly sessions to 70-100 students per week. Subject specific study Wānanga (study workshops) were delivered over weekends, by competent tutors and lecturers. Participation in Study Wānanga was high (>70% participation in many). Individual interviews continued across semesters one and two and staff met with students when required.

	Pre Intervention		– <i>Te Whakapuāwai</i> Intervention			<i>Enhanced Te Whakapuāwai</i> Intervention
Year of HSFY	2009	2010	2011	2012	2013	2014
Number in HSFY	N=89	N=70	N=95	N=76	N=106	N=139
Number taking up places in health professional programme in HSFY +1 (year following HSFY)						
Medicine	17.4%	24.2%	34.7%	39.4%	30.1%	31.6%
Dentistry	2.2%	-	2.1%	5.2%	3.7%	4.3%
Med Lab Sci	-	-	3.1%	1.3%	-	-
Pharmacy	2.2%	2.8%	3.1%	1.3%	1.8%	5.7%
Physiotherapy	3.3%	1.4%	3.1%	2.6%	6.6%	3.5%
<b>Total % of cohort gaining entry into a health professional programme</b>	<b>25%</b>	<b>29%</b>	<b>46%</b>	<b>50%</b>	<b>44%</b>	<b>50%</b>

**Table 3. No. of Māori students gaining entry directly into a University of Otago professional programme in year following HSFY**

Table 3 shows the number of Māori HSFY students gaining entry into health professional programmes across each year including 2014 following the delivery of the enhanced intervention. Outcomes for the 2014 Māori student cohort were positive with many Māori HSFY students gaining entry into health professional programmes.

Findings as to whether the enhanced intervention has fostered more equitable outcomes for students from socio-economically disadvantaged backgrounds is not yet available, however, student feedback about the 2014 intervention has been overwhelmingly positive. Māori HSFY students and the Peer Educators (Kaihautū) viewed the SWAT 6-week study skills component positively and students felt encouraged, well supported and motivated working in groups with their peers. The Study Wānanga received the most positive commentary from students, all students that attended these sessions rated the sessions as ‘extremely useful’. Students found the individual interviews (‘check in’ sessions) with staff helpful and informative. A well-constructed evaluation plan combined with qualitative and quantitative student feedback has directly informed planning for the 2015 Māori HSFY student cohort.

### **Conclusion**

Existing data suggests that the intervention is effective in increasing positive outcomes for Māori students. The challenges associated with delivering *Te Whakapuāwai* are positive, largely associated with meeting the demands of an increasing number of Māori students entering into and through Health Sciences study at the University of Otago. We aim to demonstrate whether the intervention achieves its aims of demonstrably increasing the number *and diversity* of Māori students entering health professional programmes. We hope that with continued efforts further gains will be made for all Māori students including those from lower socio-economic backgrounds, and that these efforts will have a significant and positive impact on the New Zealand health workforce in the years to come. Impact evaluation of the enhanced intervention is a work in progress.

This paper articulates our journey delivering an intervention to first year Māori students in a very challenging academic course. This is a change project building on gains from existing ‘best’ practice and increasing the effectiveness of the intervention to foster more equitable outcomes for Māori HSFY students. Our knowledge goal is to identify strategies to improve the student experience and achieve more equitable outcomes for underrepresented students in university study. The intention is to disseminate widely the findings to inform others working with first year, indigenous, lower SES or other underrepresented groups in higher education.

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