

Māori and Pacific student success: How tertiary institutions can make a difference

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Indigenous Health Workforce Inequities

- Aotearoa
 - $\approx 3.0\%$ v.s. 15%
- Australia
 - 0.2% v.s. 1.9%



≈ 300 doctors



> 125
doctors

Auckland University

Vision 20:20



“The health workforce will be made up of at least 10% Māori and Pacific by the year 2020”

Whakapiki Ake

Māori Recruitment

Secondary Schools

Indigenous

Communities

Early Exposure

Fees/transitioning

Support

CertHSc

Māori and Pacific Bridging/
Foundation

Health-Science Orientated
Learning Community

MAPAS

Māori and Pacific
Admission Scheme

Admission

Academic /Pastoral

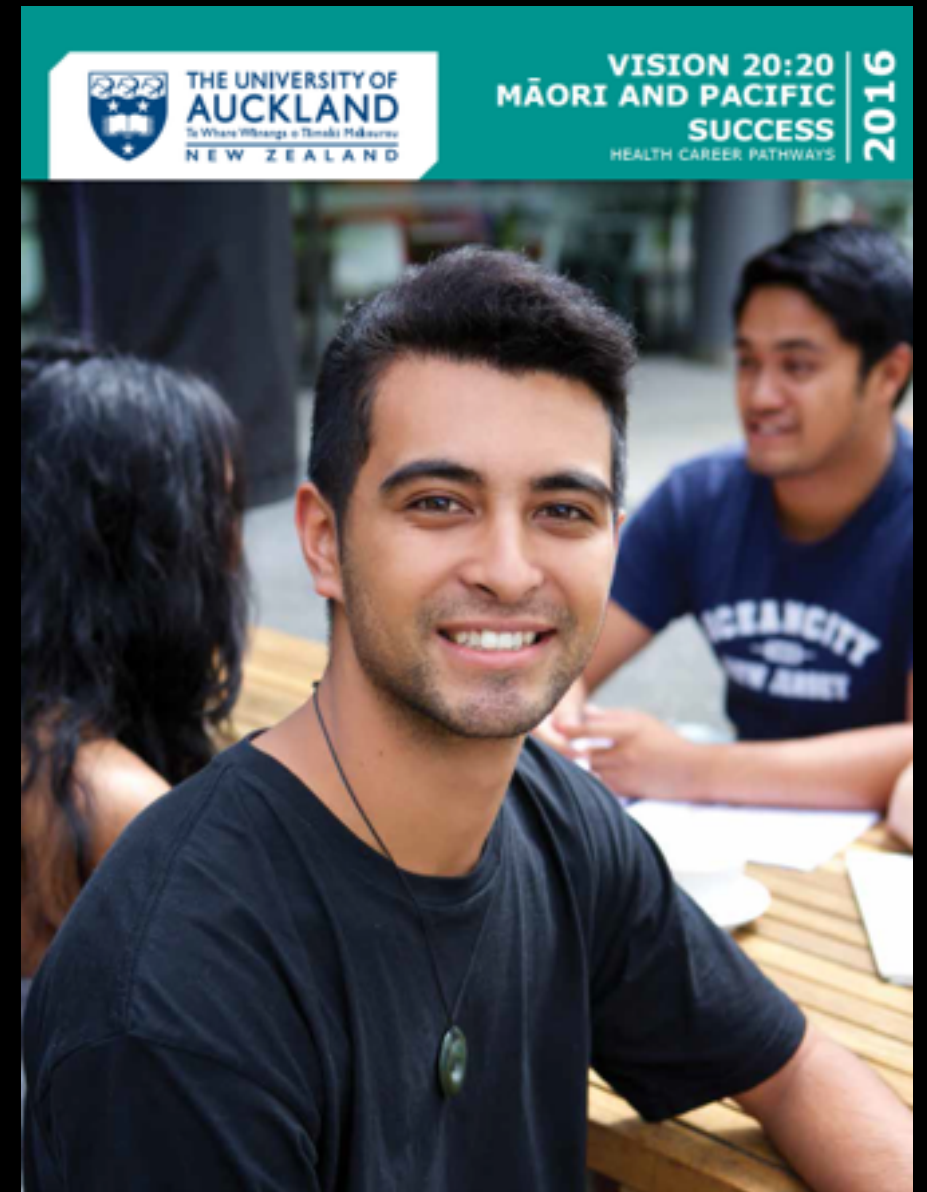
Support

Retention/Completion

MAPAS in Medicine

40+ year history

- 1972 - 3 places
- 1979 - 9 places
- 1990 - 12 places
- 1996 to 1999 - 66 places (\approx 16 places per year)
- In 2015 - 227 Māori/Pacific students in MBChB (Y2-Y6)



Increasing Numbers

- 431 'official' undergraduate MAPAS in 2015
- 229 Māori, 183 Pacific, 19 Māori/Pacific
- 25% of Medical Intake (\approx 50 places per year)

2015:
CertHSc: 70
MBChB: 227
BHSc: 99
Conjoint: 14
BNurs: 13
BPharm: 8
BOptom: 0

Improving Performance

Figure 1

CertHSc Student Pass Rate (SPR), 2005-2013

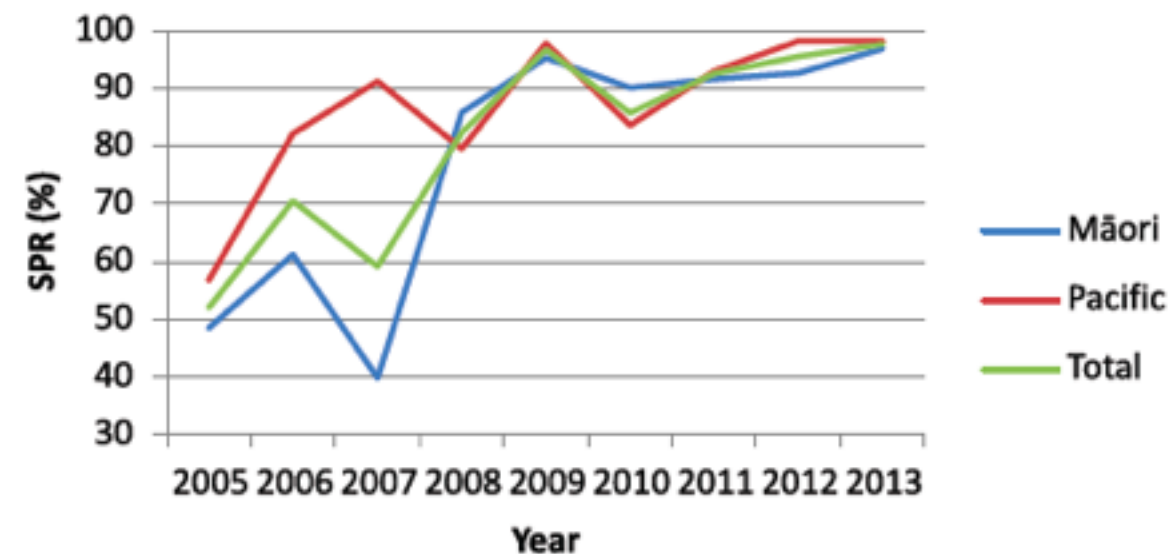
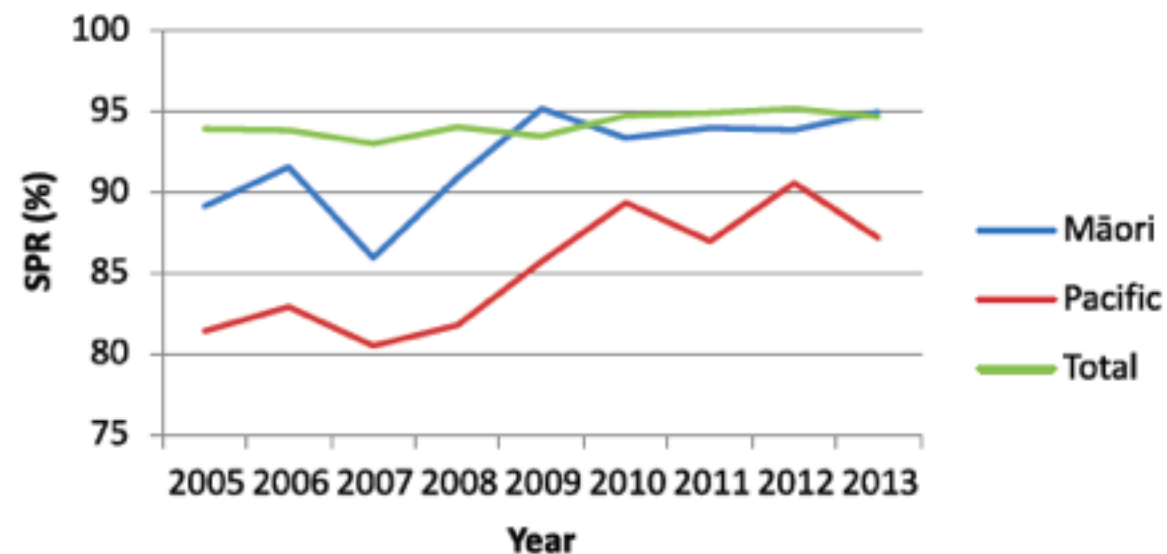


Figure 2

FMHS Undergraduate Student Pass Rate (SPR), 2005-2013



What has contributed
to these positive
outcomes?

Re-imagine Potential

THE 20 WARRIORS WERE



TOZO WERE GARDNERS



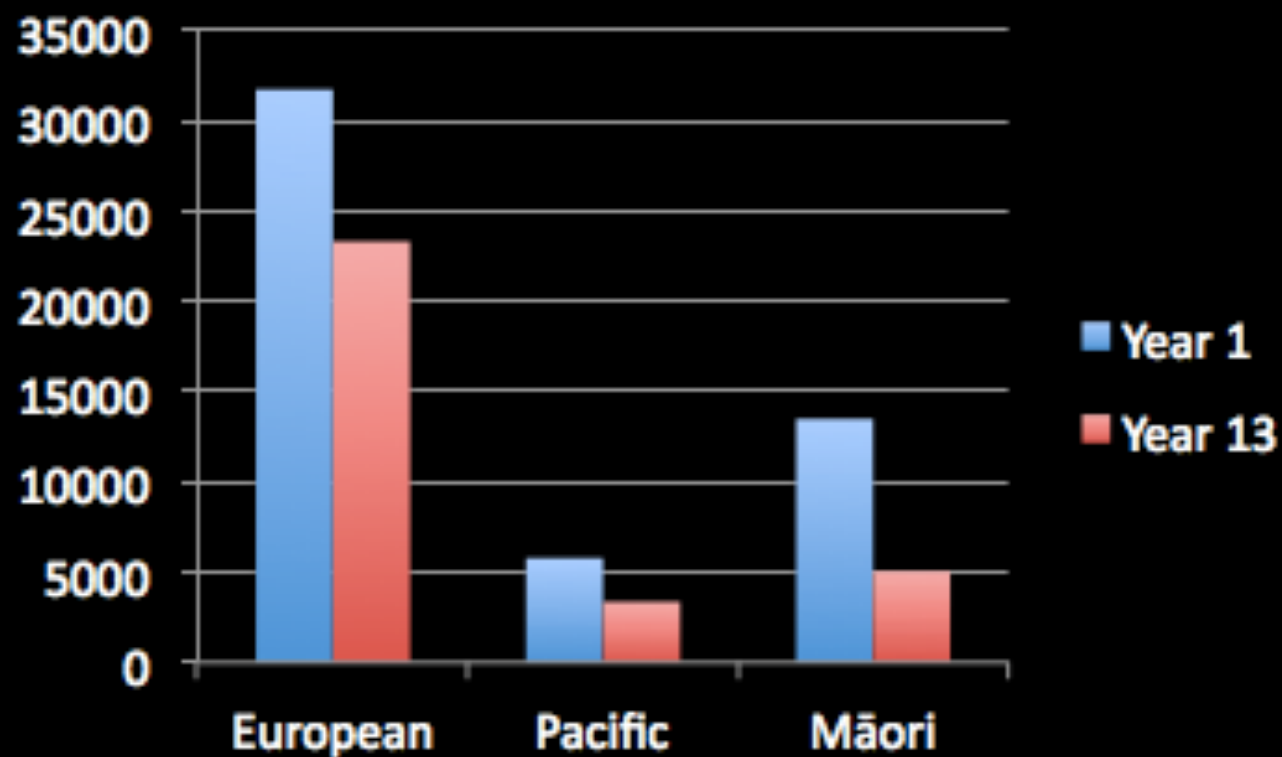
SCIENTISTS



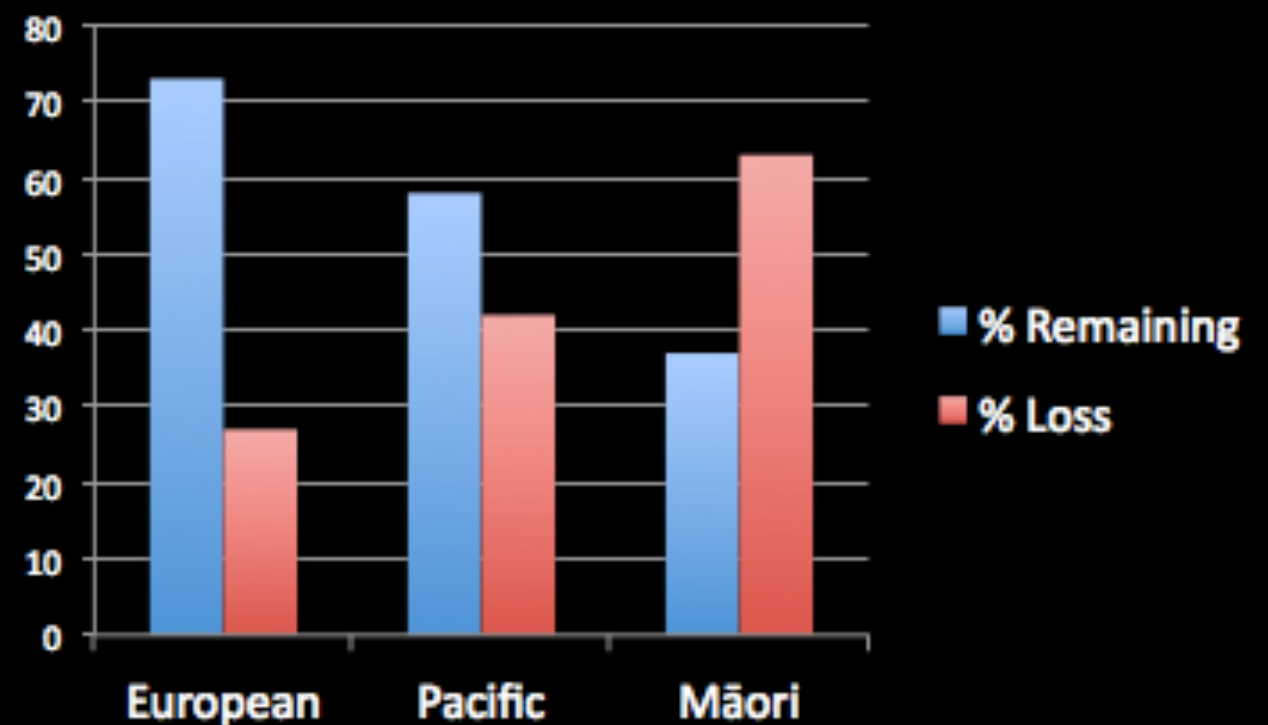
Re-direct recruitment

Access to School

Numbers Enrolled in Year 1 and Year 13

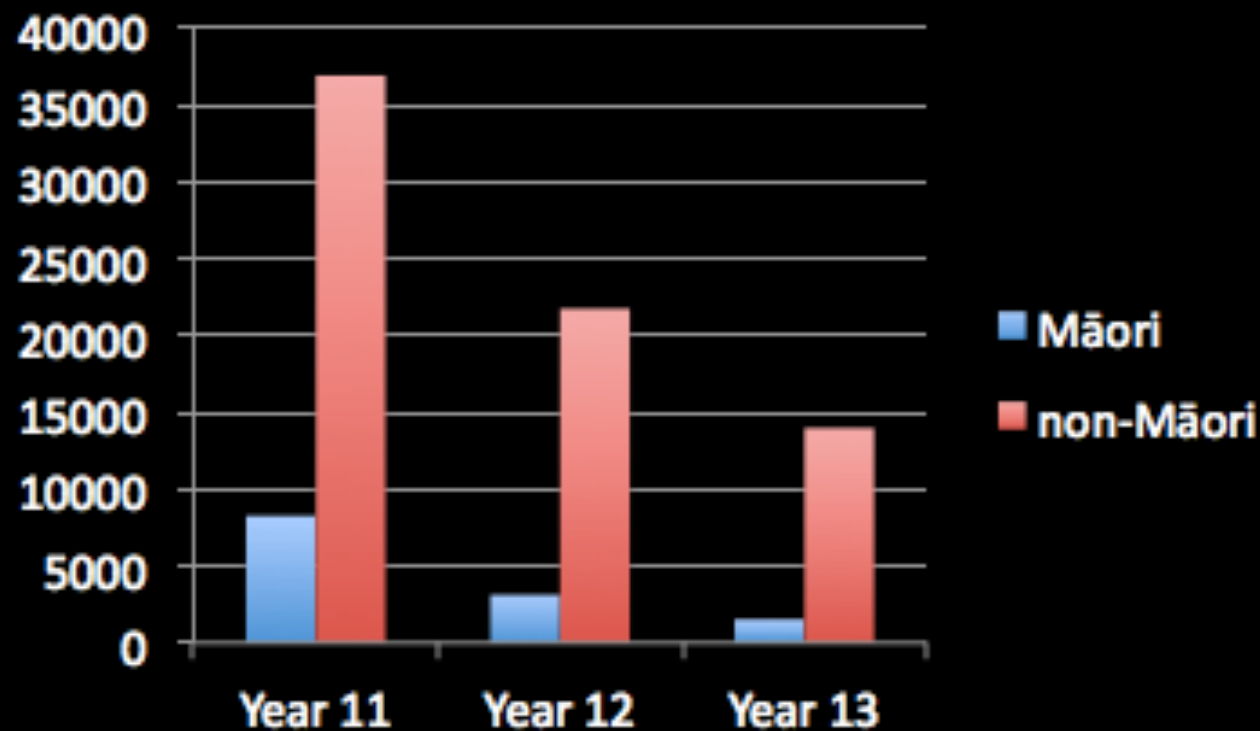


% Remaining and Lost between Year 1 to Year 13

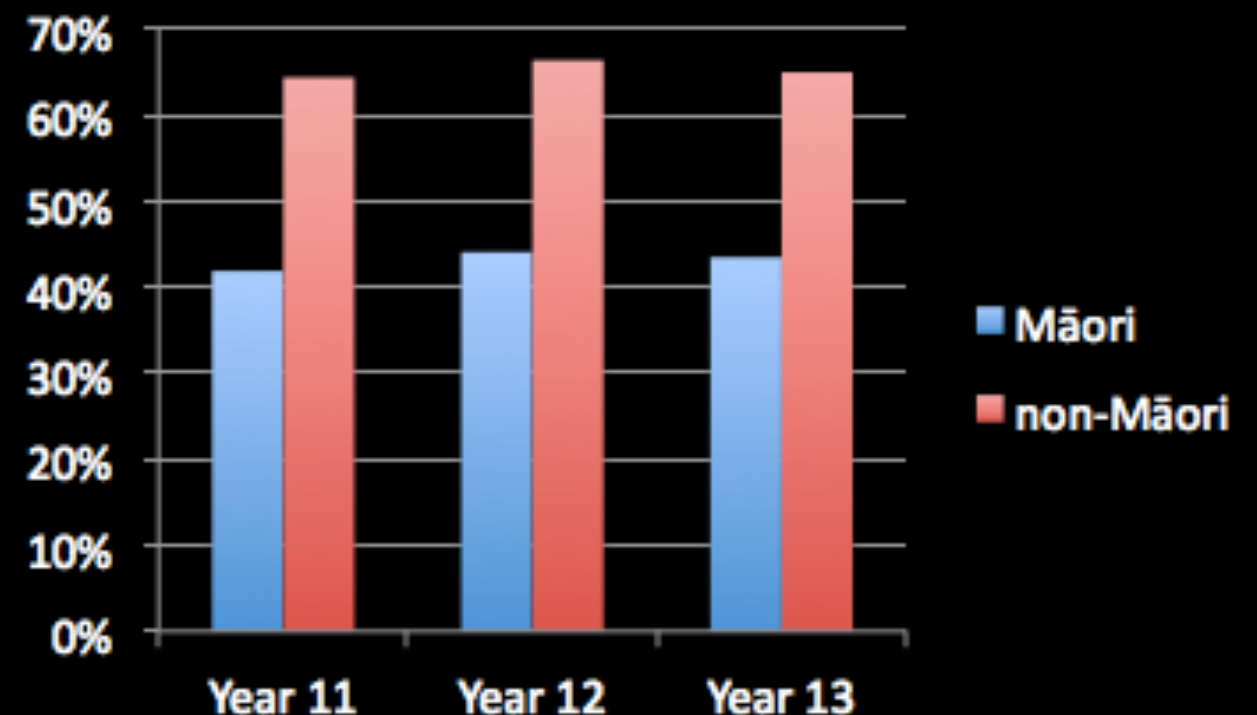


Access to Science

Participation in a science subject, 2011



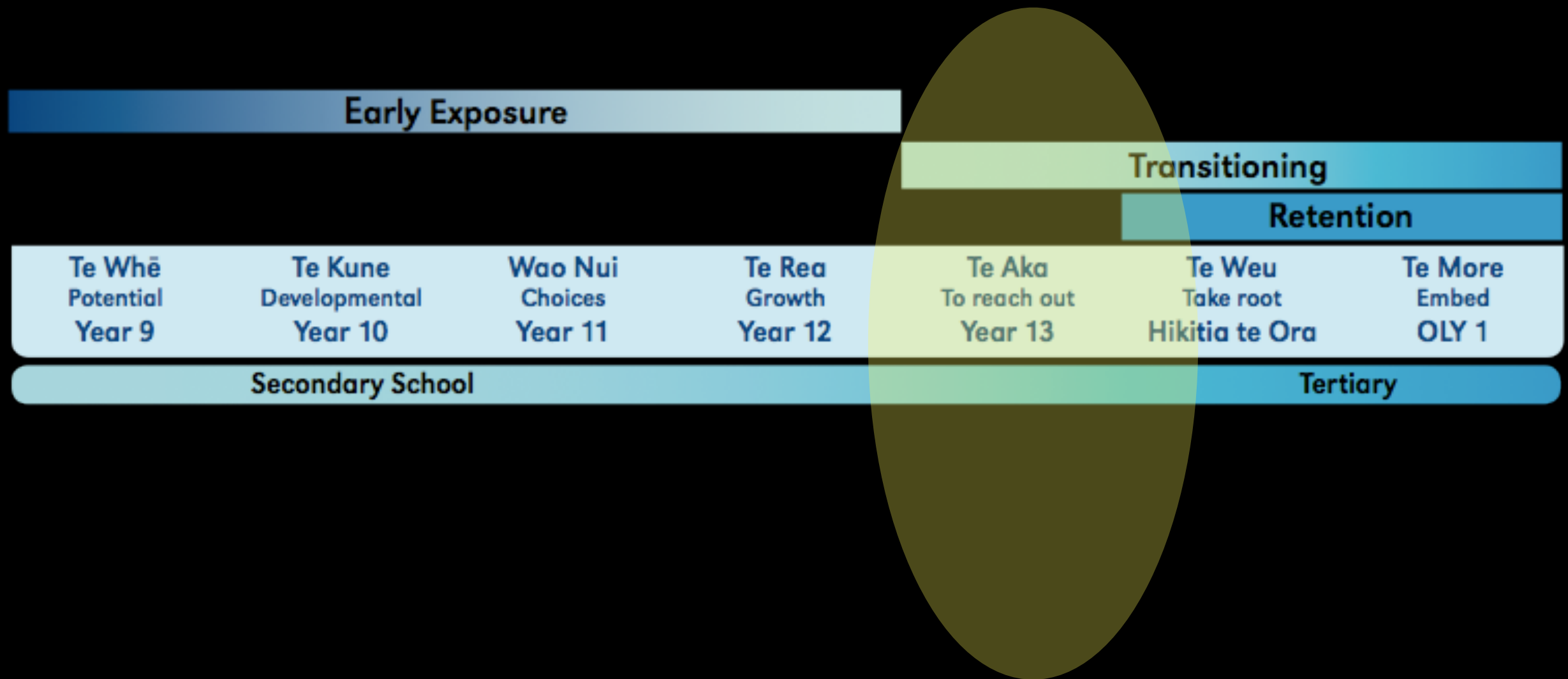
Attainment in a science subject, 2011



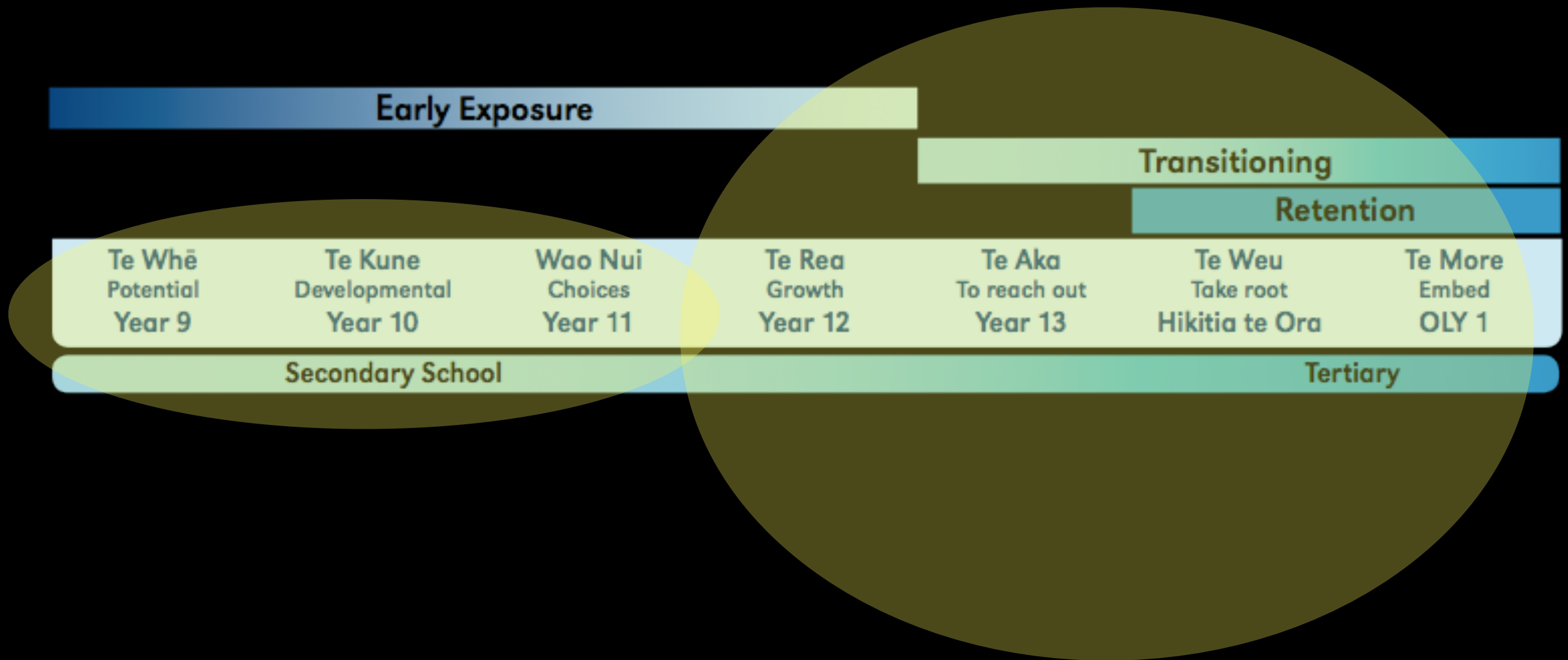
M:nM Year 11-12 “loss”: 61% v.s. 41%

M:nM Year 12-13 “loss”: 51% v.s. 36%

Old Recruitment Model



New Recruitment Model





RESEARCH

Open Access

Addressing indigenous health workforce inequities: A literature review exploring 'best' practice for recruitment into tertiary health programmes

Elana Curtis*, Erena Wikaire, Kanewa Stokes and Papaarangi Reid

Abstract

Introduction: Addressing the underrepresentation of indigenous health professionals is recognised internationally as being integral to overcoming indigenous health inequities. This literature review aims to identify 'best practice' for recruitment of indigenous secondary school students into tertiary health programmes with particular relevance to recruitment of Māori within a New Zealand context.

Methodology/methods: A Kaupapa Māori Research (KMR) methodological approach was utilised to review literature and categorise content via: country; population group; health profession focus; research methods; evidence of effectiveness; and discussion of barriers. Recruitment activities are described within five broad contexts associated with the recruitment pipeline: Early Exposure, Transitioning, Retention/Completion, Professional Workforce Development, and Across the total pipeline.

Results: A total of 70 articles were included. There is a lack of published literature specific to Māori recruitment and a limited, but growing, body of literature focused on other indigenous and underrepresented minority populations.

The literature is primarily descriptive in nature with few articles providing evidence of effectiveness. However, the literature clearly frames recruitment activity as occurring across a pipeline that extends from secondary through to tertiary education contexts and in some instances vocational (post-graduate) training. Early exposure activities encourage students to achieve success in appropriate school subjects, address deficiencies in careers advice and offer tertiary enrichment opportunities. Support for students to transition into and within health professional programmes is required including bridging/foundation programmes, admission policies/quotas and institutional mission statements demonstrating a commitment to achieving equity. Retention/completion support includes academic and pastoral interventions and institutional changes to ensure safer environments for indigenous students. Overall, recruitment should reflect a comprehensive, integrated pipeline approach that includes secondary, tertiary, community and workforce stakeholders.

Conclusions: Although the current literature is less able to identify 'best practice', six broad principles to achieve success for indigenous health workforce development include: 1) Framing initiatives within indigenous worldviews 2) Demonstrating a tangible institutional commitment to equity 3) Framing interventions to address barriers to indigenous health workforce development 4) Incorporating a comprehensive pipeline model 5) Increasing family and community engagement and 6) Incorporating quality data tracking and evaluation. Achieving equity in health workforce representation should remain both a political and ethical priority.

1. Frame initiatives within indigenous world views
2. Demonstrate tangible institutional commitment to equity
3. Address barriers
4. Incorporate comprehensive pipeline model
5. Increase family and community engagement
6. Quality data tracking and evaluation

Early Exposure

Transitioning

Retention

Te Whē
Potential
Year 9

Te Kune
Developmental
Year 10

Wao Nui
Choices
Year 11

Te Rea
Growth
Year 12

Te Aka
To reach out
Year 13

Te Weu
Take root
Hikitia te Ora

Te More
Embed
OLY 1

Secondary School

Tertiary

Raising
awareness
Exposure to health

WAP collaborations
with other recruitment
providers

Clear and
accessible information
about career choices
and school subjects

WAP collaborations
with other recruitment
providers

Subject choice is
key Applied Sciences
Maths and English

WAP collaborations
with other recruitment
providers

Online application
Pukatono form

Aim for excellence
academic, social and
cultural growth

WAP Hui ā Kura

Online social media

MASH

WAP academic
support

WAP Hui ā Rohe

WAP Wānanga
Auckland

WAP Wānanga Rohe
pilot

Application
assistance

Next Steps to Uni

MAPAS General
Interviews

Online application
Pukatono form

The decision to
move into tertiary
study requires support

WAP Hui ā Kura

Online social media

COACH

WAP academic
support

WAP Hui ā Rohe

WAP Wānanga
Auckland

WAP Wānanga Rohe
pilot

Application
assistance

Next Steps to Uni

MAPAS General
Interviews

Online application
Pukatono form

Preparation for
successful
degree study and
choice of study

Whānau
Handover Dinner

WAP check-in
Semester One

WAP check-in
Semester Two

Online social media

MAPAS supports all
WAP students

Student financial
support

Preparation for
successful study and
career pathway

Whānau
Handover Dinner

WAP check-in
Semester One

WAP check-in
Semester Two

Online social media

MAPAS supports all
WAP students

Re-focus Selection

From 'Deserving Cultural Superhero'...



...To Rights Based MAPAS eligibility

- Removal of cultural judgement @ point of entry
- MAPAS eligibility ancestry based
- Refined CertHSc entry criteria



...and 'Best Starting Point' for Academic Success

- Secondary educational inequities
- Guaranteed entry criteria designed around student 'caps'
- Focus on academic success requires more refined selection



MAPAS General Interview

December:

- **Multiple Mini Interview (MMI)**

4 stations (Careers, Whānau, Academic, Student Information)

- **Written Maths test**

- **Written English test**

- **Feedback** to applicant & whānau (provisional recommendation)

January:

- **Final recommendation** (combined with school results)

Multiple Levels of Assessment

I. For CertHSc and Bachelor:

- MMI (Subjective)
 - Minimal, Some, Major Concerns
- Testing (Objective)
 - Pass, Borderline, Fail
- 2. Per Carer Aspiration
- 3. Final Outcomes
 - CertHSc, Bachelor, Not FMHS

MMI												
		Certificate			Bachelors							
STUDENT		FC	SC	MC	FC	SC	MC					
WHANAU		FC	SC	MC	FC	SC	MC					
CAREERS		FC	SC	MC	FC	SC	MC					
ACADEMIC		FC	SC	MC	FC	SC	MC					

TESTING												
		Certificate			Bachelors							
	Score	P	BL	F	P	BL	F					
MATH	25/34	P	BL	F	P	BL	F					
ENGLISH	15/25	P	BL	F	P	BL	F					

SUMMARY INFORMATION													
Subjects and Credits	Class	Eng	Geo	His	HoA	Rel	Art	Bus	Chem	Env	Calc	Stat	Phys
LEVEL 2		22						21	29				24
LEVEL 3				Yes				Yes	Yes		Yes		
LEVEL 2 OTHER	Classics-24, Maths-19,												
LEVEL 3 OTHER	Visual Art												
RELEVANT HK	PMA: open to Cert. query career planing Visual Arts vs. Sci explore anguitesting												

DECEMBER RECOMMENDED STARTING POINT					FEEDBACK	
CAREER AIMING FOR:	CERT	BACH	NON FMHS	OTHER		
Pharmacy		✓				if wants Cert, then all good (transition)
Other (Bscience)			✓ BSc.			
Other (B.Arts)			✓ BA.			
Med.	✓	BA				if wants Cert, then all good (transition).

Rec Staff to circle name before the director finalises the recommendation before the student feedback session												
RFS:	Rob	Marko	James	Angela	Kanawa	Erena				DIRECTOR:	Olana	





RESEARCH

Open Access

A tertiary approach to improving equity in health: quantitative analysis of the Māori and Pacific Admission Scheme (MAPAS) process, 2008–2012

Elana Curtis^{1*}, Erena Wikaire¹, Yunnan Jiang², Louise McMillan², Rob Loto¹, Airini³ and Papaarangi Reid¹

Abstract

Introduction: Achieving health equity for indigenous and ethnic minority populations requires the development of an ethnically diverse health workforce. This study explores a tertiary admission programme targeting Māori and Pacific applicants to nursing, pharmacy and health sciences (a precursor to medicine) at the University of Auckland (UoA), Aotearoa New Zealand (NZ). Application of cognitive and non-cognitive selection tools, including a Multiple Mini Interview (MMI), are examined.

Methods: Indigenous *Kaupapa Māori* methodology guided analysis of the Māori and Pacific Admission Scheme (MAPAS) for the years 2008–2012. Multiple logistic regression models were used to identify the predicted effect of admission variables on the final MAPAS recommendation of *best starting point* for success in health professional study i.e. 'CertHSc' (Certificate in Health Sciences, bridging/foundation), 'Bachelor' (degree-level) or 'Not FMHS' (Faculty of Medical and Health Sciences). Regression analyses controlled for interview year, gender and ancestry.

Results: Of the 918 MAPAS interviewees: 35% (319) were Māori, 58% (530) Pacific, 7% (68) Māori/Pacific; 71% (653) school leavers; 72% (662) females. The average rank score was 167/320, 40–80 credits below guaranteed FMHS degree offers. Just under half of all interviewees were recommended 'CertHSc' 47% (428), 13% (117) 'Bachelor' and 38% (332) 'Not FMHS' as the best starting point. Strong associations were identified between Bachelor recommendation and exposure to Any 2 Sciences (OR:7.897, CI:3.855–16.175; $p < 0.0001$), higher rank score (OR:1.043, CI:1.034–1.052; $p < 0.0001$) and higher scores on MAPAS mathematics test (OR:1.043, CI:1.028–1.059; $p < 0.0001$). MMI stations had mixed associations, with academic preparation and career aspirations more consistently associated with recommendations.

Conclusions: Our findings raise concerns about the ability of the secondary education sector to prepare Māori and Pacific students adequately for health professional study. A comprehensive tertiary admissions process using multiple tools for selection (cognitive and non-cognitive) and the provision of alternative entry pathways are recommended for indigenous and ethnic minority health workforce development. The application of the MMI within an equity and indigenous cultural context can support a holistic assessment of an applicant's potential to succeed within tertiary study. The new MAPAS admissions process may provide an exemplar for other tertiary institutions looking to widen participation via equity-targeted admission processes.

Keywords: Māori, Pacific, Indigenous, Ethnic minority, Health workforce development, Tertiary admission, Multiple mini interview, Widening participation, Secondary education

Table 2 Descriptive summary of MAPAS interview attendees' demographics and outcome variables, 2008–2012

Descriptive variables	MAPAS IV attendees 2008 – 2012			
	Māori <i>n</i> (%)	Pacific <i>n</i> (%)	Both <i>n</i> (%) ⁺	Total (%) [#] <i>n</i> (%)
Total Cohort	319 (35%)	530 (58%)	68 (7%)	918
MAPAS IV year				
2008	42	59	8	109 (12)
2009	55	89	6	150 (16)
2010	73	151	15	239 (26)
2011	72	123	20	215 (24)
2012	77	108	19	205 (22)
Gender				
Female	223 (70)	391 (74)	48 (71)	662 (72)
Male	96 (30)	139 (26)	20 (29)	256 (28)
Admit category				
SL*	222 (70)	390 (74)	41 (60)	653 (71)
AA*	97 (30)	140 (26)	27 (40)	265 (29)
Final Jan Rec.				
Certificate	154 (48)	251 (47)	22 (32)	428 (47)
Bachelors	541 (17)	53 (10)	10 (15)	117 (13)
Not FMHS*	89 (28)	208 (39)	35 (51)	332 (36)
Missing	22 (7)	18 (4)	1 (1)	41 (4)

*SL = School Leaver, AA = Alternative Admission, FMHS = Faculty of Medical and Health Sciences

[#]Note that one student with missing Ancestry has been included in the Totals.

⁺Proportion calculations may not reflect 100% due to rounding issues.

Not University Ready

Table 3 Admission process variables (December and January) for MAPAS interview attendees (2008–2012)

MAPAS admissions process variables	MAPAS IV attendees 2008 – 2012			
	Māori (n = 319)	Pacific (n = 530)	Both (n = 68)	Total (n = 918)
<i>Continuous variables</i>	<i>Mean ± SD</i>	<i>Mean ± SD</i>	<i>Mean ± SD</i>	<i>Mean ± SD</i>
MAPAS Maths test	75.2 ± 20.5	70.3 ± 22.1	68.9 ± 22.2	71.9 ± 21.7
MAPAS English test	67.6 ± 14.5	61.2 ± 15.9	67.0 ± 14.1	63.9 ± 15.6
NCEA School results				
Rank Score ^a	185.0 ± 65.2	157.3 ± 61.7	162.1 ± 71.8	166.8 ± 64.8
L3 English	15.6 ± 6.9	14.4 ± 6.5	13.9 ± 7.5	14.8 ± 6.7
L3 Biology	15.4 ± 6.7	13.0 ± 6.3	12.2 ± 6.3	13.7 ± 6.5
L3 Chemistry	13.6 ± 7.8	11.8 ± 7.3	14.7 ± 8.9	12.6 ± 7.6
L3 Physics	15.7 ± 7.8	13.1 ± 7.9	15.3 ± 8.7	14.1 ± 7.9
L3 Maths	22.2 ± 13.4	20.6 ± 12.7	20.3 ± 11.4	21.1 ± 12.9

Effect On Academic Outcomes

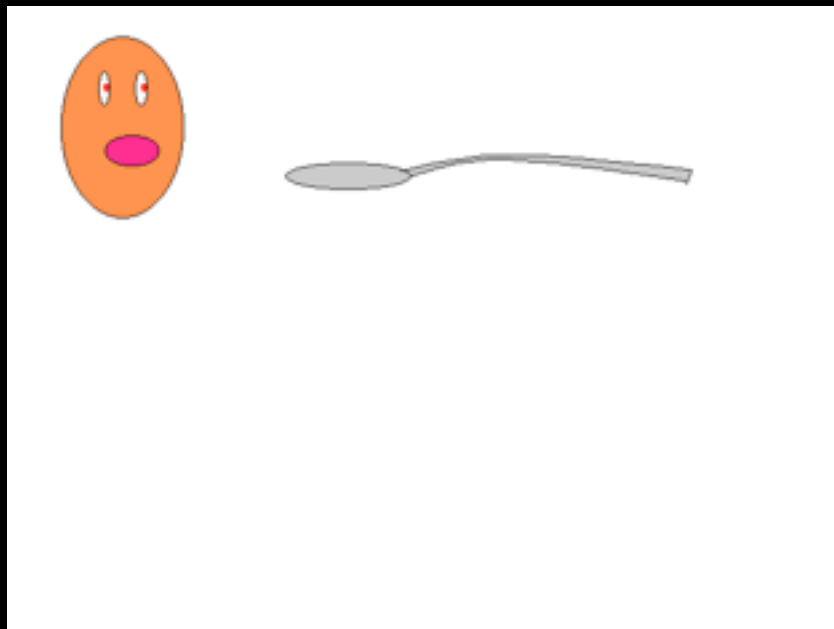
Following MAPAS Advice (Yes/No) (2008-2012):

- GPA – was **1.2 points** (out of 9) higher for *First Year tertiary*
- GPA – was **1.1 points** (out of 9) higher for *First Year Bachelors (and Core 4 courses)*
- Passing all courses - **5.4 times** higher for *First Year Tertiary*
- Passing all courses - **3.3 times** higher for *First Year Bachelors (and Core 4 courses)*

Re-fine bridging/
foundation education

S4All Key Findings

2 year qualitative
research project
(28 CertHSc
participants)



- Spoon-feeding not helpful
- Need for independent learning
- Māori/Pacific content in curriculum helpful (e.g. cultural wānanga)
- Non-lecture based learning both helpful/hindering (e.g. tutorials)
- Student support (e.g. MAPAS very helpful)

Learning Community



Open to critique: predictive effects of academic outcomes from a bridging/foundation programme on first-year degree-level study

Elana Curtis^{a*}, Erena Wikaire^a, Yaman Jiang^b, Louise McMillan^b, Robert Loto^a, Sonia Fornua^a, Rowan Herbert^a, Melissa Hori^a, Tei Ko^a, Rochelle Newport^a, David Salter^c, Janine Wiles^d, Aini^e and Papatangi Reid^f

^aDepartment of Māori Health, University of Auckland, Auckland, New Zealand; ^bDepartment of Statistics, University of Auckland, Auckland, New Zealand; ^cDepartment of Chemical Sciences, University of Auckland, Auckland, New Zealand; ^dDepartment of Social and Community Health, University of Auckland, Auckland, New Zealand; ^eFaculty of Human, Social and Educational Development, Thompson Rivers University, Kamloops, Canada

Bridging/foundation programmes are often provided by tertiary institutions to increase equity in access and academic performance of students from under-served communities. Little empirical evidence exists to measure the effectiveness of these bridging/foundation programmes on undergraduate academic outcomes. This research identifies the predictive effect of academic outcomes achieved within a bridging/foundation programme, targeted towards indigenous and ethnic minority students, on first-year degree-level outcomes. Overall performance within the bridging/foundation programme was positively associated with increasing Grade Point Average (GPA), 'Core 4' GPA and passing all courses in first year. However, mixed associations were identified between feeder bridging/foundation courses and their intended first year course counterparts. These findings support the continued provision of bridging/foundation education; however, curricular reform within the bridging/foundation programme was required. Key developments included: restructuring course delivery; increasing constructive alignment across the curriculum; increasing cultural content within western science-orientated courses; introduction of cross-curricular assessment and use of additional innovative teaching and learning activities. Additional challenges remain for degree programmes to explore how they can change in order to better support indigenous and ethnic minority student success within first-year tertiary study.

Keywords: bridging/foundation education; academic outcomes; indigenous; ethnic minority

Introduction

Background

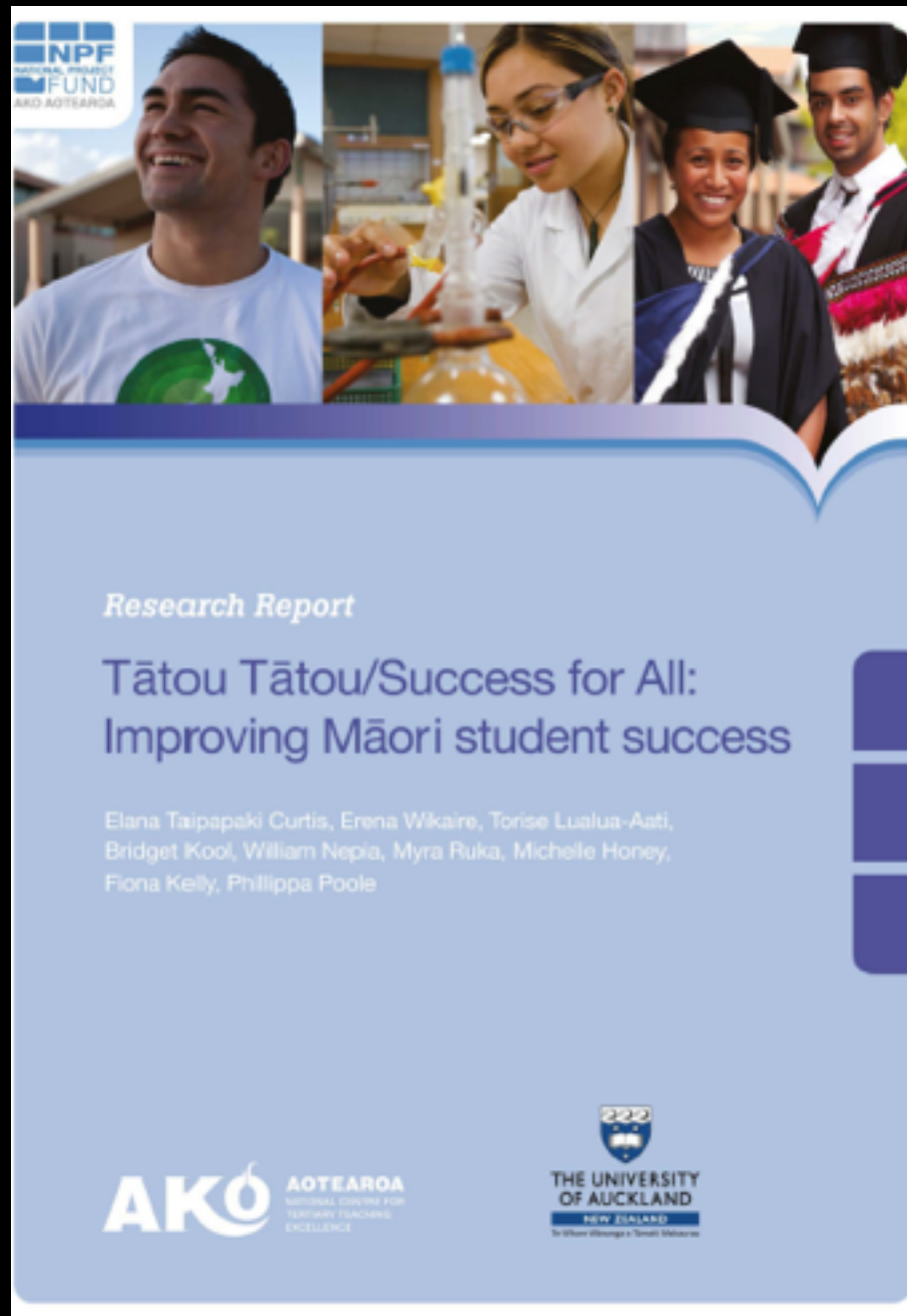
Tertiary education institutions are often challenged with the need to widen participation, increase student diversity and improve student outcomes, including undergraduate retention and completion (Whiteford, Shah, and Nair 2013). Addressing these issues for indigenous and ethnic minority students is particularly important, given the persisting inequities in tertiary access and academic outcomes observed for these students worldwide (Sullivan 2004; Pechenkina and Anderson 2011).

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- CertHSc GPA positively associated with:
 - **higher first year GPA** (1.19, CI: 1.04-1.34)
 - **higher core 4 GPA** (1.35, CI: 1.20-1.51)
 - **passing all first year courses** (OR: 3.4, CI: 2.13-5.44)
 - **passing all core 4** (OR: 4.88, CI: 2.70-8.82)
- Mixed associations between feeder courses and their first year counterparts

Re-orient Student Support

Tātou Tātou – Success For All



- Student cohesiveness/ whakawhanaungatanga important
- Racism experienced - peer-peer, clinical educators
- Culturally “safe” student space essential
- Academic Representation important

How tertiary institutions can make a difference

- Re-imagine indigenous/ethnic minority potential
- Re-invest in recruitment
- Re-focus selection - to “best starting point”
- Re-fine bridging/foundation pathways
- Re-view and critique their own role as educators/institution



Ngā Mihi

- Vision 20:20 staff and students
- Research Collaborators
- Te Kupenga Hauora Māori
- Kaumātua
- FMHS, UoA



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