Achieving Parity for Māori and Pasifika – the University Sector View

Preamble

Universities support Government objectives of lifting participation and achievement for Māori and Pasifika in tertiary education.

Universities do not support the sort of simplistic parity targets that have been set and continually missed in the past as those targets invariably disregard the unavoidable impact of the student pipeline through from the compulsory sector.

This paper has been generated to detail some practical strategies that universities can contribute to and that universities believe would truly lead to parity of both participation and achievement over time.

It shows that universities can't materially do much more within current resourcing, policy, and funding settings by themselves. But there is a lot that could be achieved by looking at parity as a whole-of-system challenge and by getting the whole system to work together.

The paper focuses primarily on the gap between Māori and European Pākehā participation and achievement at university. Note that we have chosen 'European Pakeha' as the comparison rather than all non-Māori or the overall population due to factors such as (a) Pasifika participation and achievement also being an issue at all levels and dragging down averages, and (b) atypical results for Asian students, where UE completion rates and university participation levels being much higher than the average, but completion much lower – on the face of it due to non-academic factors.

In preparing this paper, universities note that the rights of Māori vary from those of Pasifika as a consequence of Crown obligations under the Treaty, but see that systematically addressing the needs of one group is likely to generate the approaches and solutions that will address the needs of all other underrepresented groups at university.

This paper has been developed to support a conversation at a Chief Executives and Vice-Chancellors' Strategic Dialogue. It is deliberately short and takes an illustrative approach to unpicking the issues and potential solutions.

What is it worth to New Zealand to achieve parity?

There is no reliable evidence as to the amount that is currently being invested in lifting participation and achievement by Māori and Pasifika. The primary underpinning rationale for parity must be improving Māori and Pasifika educational success in the broader interest of all New Zealand and New Zealanders.

However, we can estimate the economic opportunity cost to New Zealand as a consequence of Māori and Pasifika educational achievement being behind that of Pākehā.

If parity was achieved, another 2,700 Māori and 1,100 Pasifika would be on a path to obtaining a university degree each year[1] and, over a 20-year period, lift the number of degree-educated Māori and Pasifika by over 100,000.[2]

Noting that degree-educated Māori and Pasifika have similar employment and earnings figures as degree-educated non-Maori, this would have benefits for the country and for the graduates themselves.

BERL[3] recently published research (commissioned by Ngāi Tahu) that estimated an additional $2.6 billion of income for Māori households if equity in educational attainment was achieved and if this led to the Māori workforce having roughly the same proportion of skilled and lower skilled jobs as non-Māori.

What are the parity gaps?

We think that parity needs to be thought of in terms of seven gaps against some agreed baseline. The baseline can the overall population, and/or another subset. These seven gaps are;

1. **Gap 1: Retained to Yr13** – the proportion of Māori or Pasifika retained to Year 13 (and/or attained UE) relative to the chosen baseline.

2. **Gap 2: University Entrance** – the proportion of Māori or Pasifika gaining University Entrance (UE) relative to the chosen baseline.

3. **Gap 3: STEM** – the proportion of Māori or Pasifika achieving a significant number of NCEA Level 3 credits in science, technology, and/or mathematics. (We've chosen at least 30 credits in Level 3 STEM subjects). The STEM gap has been chosen because Māori and Pasifika are traditionally under-represented in STEM subjects (and a range of non-STEM disciplines such as business studies) and this potentially closes off a number of career options. This focus on STEM is not at the expense of studies across the humanities – which also provide valuable skills and outcomes for New Zealand and New Zealanders.

4. **Gap 4: Participation** – the proportion of Māori or Pasifika with UE enrolling in a degree level programme within some period of time after leaving school (we've chosen five years).

5. **Gap 5: Retention** – the proportion of Māori or Pasifika who enrol in a degree level programme at university and proceed to second year.

6. **Gap 6: Completion** – the proportion of Māori or Pasifika who successfully complete a degree level qualification.

7. **Gap 7: Outcomes** – the proportion of Māori or Pasifika in graduate level employment (eg, not unemployed, or under-employed) within three years of completing their studies.

Any number of further gaps could be added to this analysis in areas such as; participation in post-graduate studies. However, the seven gaps above are seen as sufficient for working through the main issues and opportunities.

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[1] Based on modelled NZ Pākehā European UE attainment, university participation, first year retention and qualification completion rates on Māori and Pasifika school leaver cohort. Doesn't take account of growing population (conservative).

[2] Indicative, based on current gap between Pākehā and Māori and Pasifika degree qualification rate for population 15+. Not age standardised, but also, conservatively, doesn't take account of increasing Māori and Pasifika populations (conservative). Assumes Pākehā degree qualification rate remains constant (~24%).

[3] Change Agenda: Income Equity for Māori, Making Sense of the Numbers, BERL Reference Number #5844, December 2017.

In thinking about each gap, Government and universities need to agree on the following if real progress is going to be made on closing them over a reasonable timeframe;

- What are the key factors that contribute to each gap?

- Which of the key factors can universities reasonably be held accountable for? Which can universities be expected to contribute to? Which are largely or wholly out of university control?

- Where could resourcing and policy settings be best amended to improve the university sector's ability to close gaps where it is accountable or contributing.

- What is a realistic timeframe for closing gaps.

The university sector sees the accountability framework as shown in the next table. However, we recognise that even where universities (or schools) are not responsible or accountable, they often have a legitimate interest or can play a useful role. For example, university researchers can contribute significantly in areas such as design, evaluation, and sharing of knowledge across all parts of the system.

Table 1	Parity Gap	Gaps	Compulsory Schooling System	Universities	Govt
Retained to Yr13 (or attained UE if <Yr13)	-19%	Gap 1 – Retained to Yr13	Accountable	Contributing	Leading
Left school with University Entrance	-31%	Gap 2 - UE Achievement	Accountable	Contributing	Leading
Attained 30 or more credits in Level 3 STEM (with UE)	-17%	Gap 3 – STEM	Accountable	Contributing	Leading
Entering university degree study	-2%	Gap 4 - Participation	Contributing	Accountable	
Passed at least 85% of first year courses	-18%	Gap 5 - Retention	--	Accountable	
Completed a degree qualification or higher within 6 years	-17%	Gap 6 - Completion	--	Accountable	
In degree level employment 3 years after graduating	0.8%	Gap 7 - Outcomes	--	Contributing	

Table 2 below shows one possible gap analysis where Māori participation and achievement are compared against a baseline of European Pākehā participation and achievement for a cohort of school leavers. This table is based on numbers provided by the Ministry of Education (other than Gap 7 – Outcomes which come from Statistics New Zealand and are based on 2013 Census returns). See Attachment A for more information.

Note that "Parity Gaps" are calculated per the row named 'Gap Calculation'. The "Parity Gaps" are the difference between the percentage in column (a) and the percentage in column (b).

Table 2	European Pākehā			Māori			"Parity Gap"	Gaps
	% of stage[4]	% of school leaver cohort	Loss of cohort (cumulative)	% of stage	% of school leaver cohort	Loss of cohort (cumulative)		
Gap Calculation	(a)			(b)			=(b) – (a)	
Leave School 2009	**100%**	100%	-	**100%**	100%	-	-	
Retained to Yr13 (or attained UE if <Yr13)	**73%**	73%	27%	**54%**	54%	46%	-19%	Gap 1 - Retention to Yr13
Left school with University Entrance [5]	**55%**	40%	60%	**24%**	13%	87%	-31%	Gap 2 - UE Achievement
Attained 30 or more credits in Level 3 STEM (with UE)[6]	**43%**	17%	*Included in UE loss (Gap 2)*	**26%**	3%	*Included in UE loss (Gap 2)*	-17%	*Gap 3 – STEM*
Entered university degree study or above (by 2011)[7]	**86%**	35%	65%	**85%**	11%	89%	-2%	Gap 4 - Participation
Passed at least 85% of first year courses	**73%**	25%	75%	**55%**	6%	94%	-18%	Gap 5 – Retention
Completed a degree qualification or higher within 6 years	**78%**	27%	73%	**60%**	7%	93%	-17%	Gap 6 – Completion
In degree level employment 3 years after graduating[8]	>85% *est.*	23%	77%	>85% *est.*	6%	94%	0.8%	Gap 7 - Outcomes

The results can be seen in the following two charts which highlight the differences in profile for European Pākehā and Māori students in the cumulative impact of each of the gaps (visually separated to show gaps that occur before, and those that occur after, entry to university):
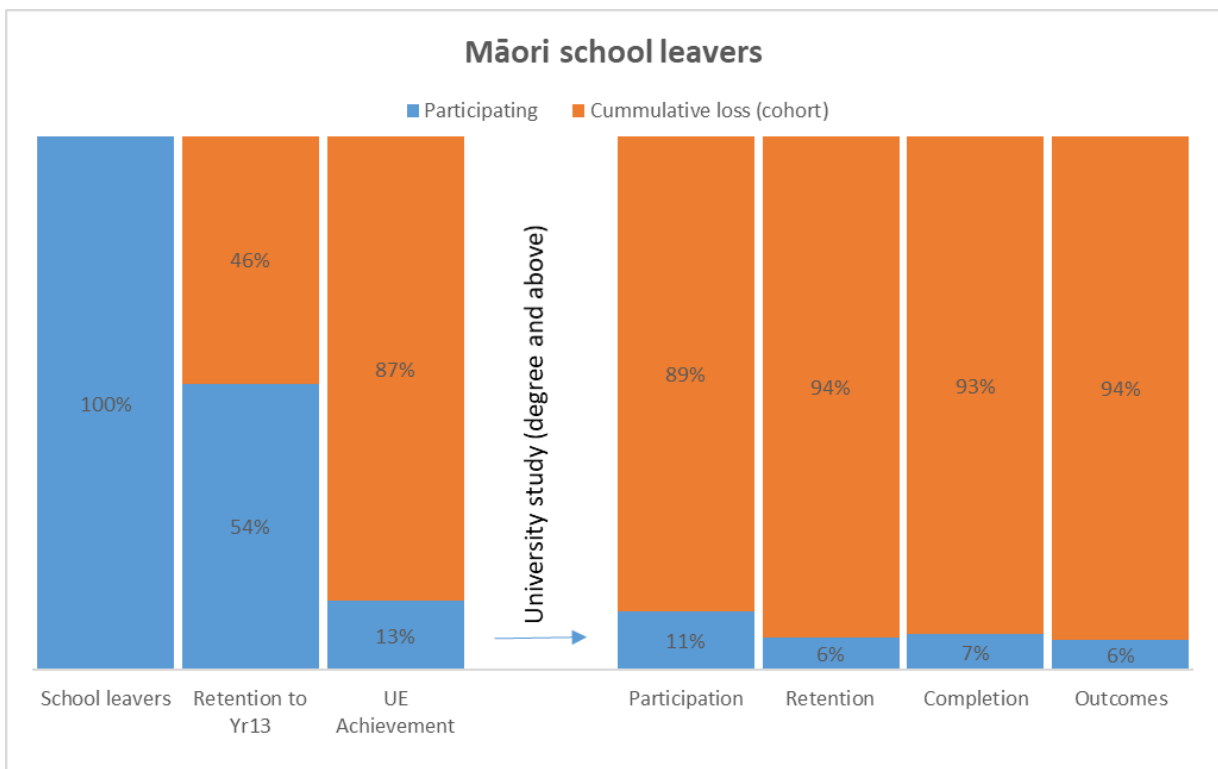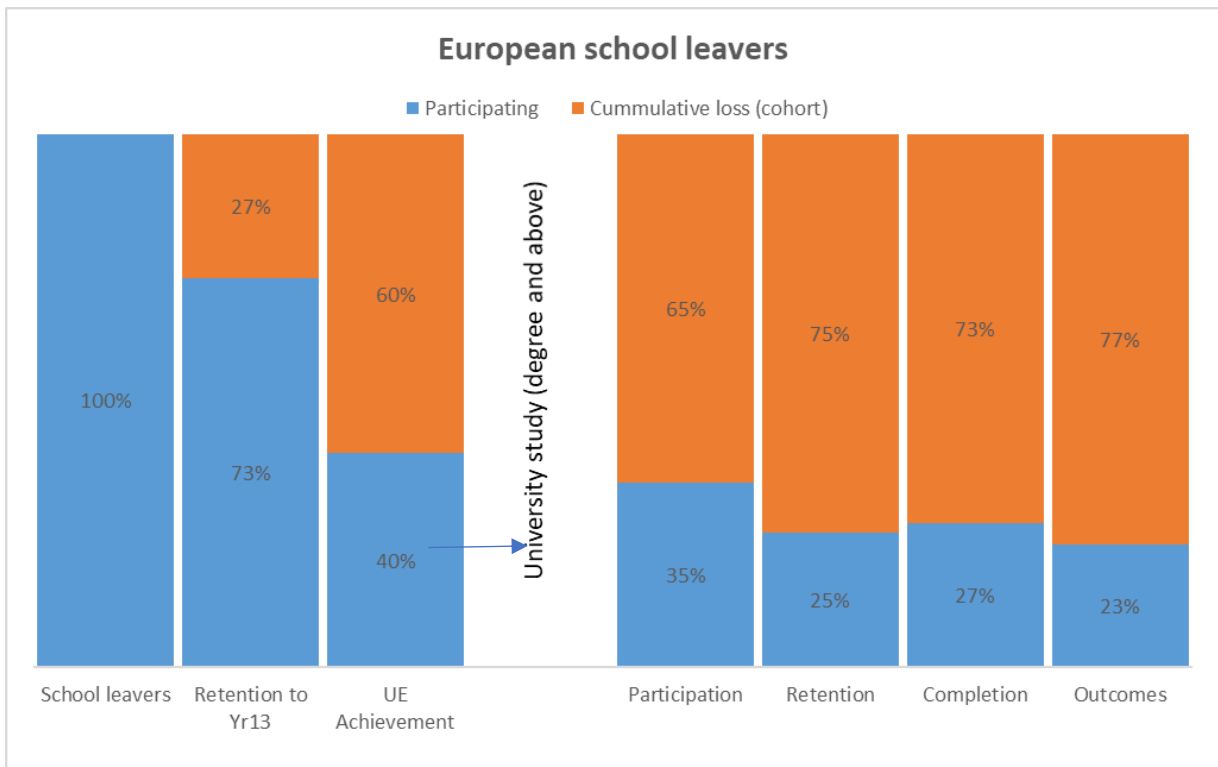
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[4] "Stage calculations": Gap 1 = % of school leavers; Gaps 2 and 3 = % of those retained to Yr 13 (or attained UE if left prior to Yr13); Gap 4 = % of those who attained UE; Gap 5 = % of those who entered university degree study; Gap 6 = % of those who passed at least 85% of first year courses; Gap 7 = % of those who completed a degree qualification or higher.

[5] University Entrance includes attaining equivalent qualifications through Cambridge and IB systems, and only includes those who attained UE with a Level 3 school qualification.

[6] Calculation excludes those who attainment UE through non-NCEA qualifications, so may understate STEM profile of Pākehā (2% acquire UE through non-NCEA qualifications).

[7] Entered university degree study or above by 2011 (i.e. within 2 years of leaving school for this 2009 leaver cohort).

[8] Based on custom data extract from the 2013 Census by Statistics NZ.

European school leavers

School leavers: 100% Participating
Retention to Yr13: 73% Participating, 27% Cumulative loss (cohort)
UE Achievement: 40% Participating, 60% Cumulative loss (cohort)
University study (degree and above)
Participation: 35% Participating, 65% Cumulative loss (cohort)
Retention: 25% Participating, 75% Cumulative loss (cohort)
Completion: 27% Participating, 73% Cumulative loss (cohort)
Outcomes: 23% Participating, 77% Cumulative loss (cohort)

Māori school leavers

School leavers: 100% Participating
Retention to Yr13: 54% Participating, 46% Cumulative loss (cohort)
UE Achievement: 13% Participating, 87% Cumulative loss (cohort)
University study (degree and above)
Participation: 11% Participating, 89% Cumulative loss (cohort)
Retention: 6% Participating, 94% Cumulative loss (cohort)
Completion: 7% Participating, 93% Cumulative loss (cohort)
Outcomes: 6% Participating, 94% Cumulative loss (cohort)

Over the following pages, some of the key research exploring these gaps, individually and collectively, is briefly discussed. Critically, this research highlights the important role that school engagement and performance plays in accounting for participation, retention and achievement at tertiary level.

Understanding the gaps – individually and collectively

There is extensive research and experience that can be drawn upon to inform strategies for addressing the gaps individually and collectively. In the interests of brevity, a sample of some of the most recent and relevant analysis is summarised in this section.

We also note that there are a range of initiatives already underway that will potentially contribute to parity goals in time – such as Māori Medium education in the schooling system and the University Sector Cycle 6 Enhancement Theme which is also focussed on lifting Māori participation and achievement.

1. Inter-related issues around Yr13 retention (Gap 1), UE achievement (Gap 2), STEM achievement (Gap 3) and university participation (Gap 4)

It is useful to think of Gaps 1- 4 as a group. Retention, achievement and subject choice at school improve a student's chances of participating in university study. Without this, the pathway to attend university becomes more difficult or closes altogether.

There is a wide range of evidence, analysis and opinion regarding factors that contribute most to achievement at school and participation in higher level study. At the more data-driven level there are the findings of the New Zealand Productivity Commission Working Paper of 2017[9] which, through analysis of IDI administrative data concludes that 86.69% of the difference in the chance of Māori or Pākehā students participating in tertiary education is accounted for through factors found in the administrative data[10] with the remaining 13.31% being due other unobserved factors such as those that are cultural-specific.

In the administrative data 77.8% of the participation gap is due to just one factor - 'school performance and engagement'. School performance was assessed on NCEA Level 1 results where, on average, 18% of Māori attain NCEA Level 1 with merit or excellence, compared with 44% for Pākehā. And engagement was assessed based on the number of notifications (school suspensions, stand-downs, and serious truancies), where Pākehā received an average of 0.14, Māori students received more than twice as many at 0.40.[11] The second most important factor affecting participation is socio-economic status (8.4%), followed by the parents' highest qualification (3.1%).

Studies such as the University of Auckland Starpath Project provide some useful evidence-based insights into factors that improve school performance and engagement for all students (Māori and non-Māori)[12]. These include;

- Capable and engaged teachers who hold and encourage high aspirations for their students,

- Clear NCEA pathways that enable students to fulfil their aspirations.

- Data that allows teachers and schools to track student performance and to identify potential or actual issues around engagement and achievement.

- An education system where policy, leadership, and teaching are all pulling in the same direction.

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[9] Meehan, L., Pacheco, G. & Pushon, Z (2017). Explaining ethnic disparities in bachelor's qualifications: participation, retention and completion in NZ. New Zealand Productivity Commission Working Paper 2017/01.
[10] Administrative data includes everything in the Integrated Data Infrastructure datasets such as; parent's qualifications, academic performance at school, characteristics of the school attended, distance to the nearest tertiary education provider, tertiary education completion rates, highest qualification achieved, etc.
[11] Ibid. Pg 13 and 30.
[12] Kiro, C., Hynds, A., Eaton, J., Irving, E., Wilson, A., Bendikson, L., Cockle, V., Broadwith, M., Linley-Richardson, T. & Rangi, M. (2016). Starpath Phase 2. Final Evaluation Report., Starpath Project, the University of Auckland.

The Auckland Starpath project identified a number of common barriers to student success. These included;

- Though many students aspired to achieve UE, (smaller) schools were not always able to offer the necessary range of subjects.

- There were issues with quality of teaching (linked to the qualifications of teachers – particularly in the sciences)

- The quality of advice received about NCEA course choices varied.

- The key challenges to student success were factors that all presented well before secondary school – such as absenteeism, engagement, and comparatively poor levels of literacy.[13]

Studies such as Te Kotahitanga (funded by the Ministry of Education and leading to a range of publications[14]) reinforce these findings – showing that culturally responsive pedagogy can significantly improve the engagement and achievement of Māori students.

Separately, we know that the aspirations of individual students and their families also significantly affects performance at school and decisions around post-school choices.

The issues around Gap 2 (UE Achievement) are also prevalent in Gap 3 (STEM Achievement). A 2013 analysis[15] of initiatives to lift STEM participation and achievement in New Zealand found that some of the major factors limiting Māori participation in STEM included all of the issues identified by the Starpath Project, but with on the following additional factors also present;

- A lack of qualified STEM teachers, particularly outside of the major metropolitan areas.

- A lack of teachers able to deliver STEM teaching in a culturally relevant way.

- A bias (unconscious or otherwise) within schools that Māori (and Pasifika) students were less capable and/or likely to be interested in STEM subjects and so provision of academic and careers advice that steered them down other paths.

Universities NZ analysis of 2013 Census results noted that most graduates with degree-level qualifications in STEM subjects are earning $70,000 or more annually within a few years after they graduate – more than is likely as a teacher within the same time period. As a result, teaching is less likely to be seen as an attractive option for those who are both capable and motivated by potential earnings.

There are similar challenges around attracting skilled motivated humanities graduates into the teaching profession with skills in areas such as Te Reo.

Working towards parity in Gaps 2 & 3 will assist in lifting achievement in Gap 4 (participation rates at university) and Gap 5 (retention into second year).

Again, referring to the Productivity Commission (2017) analysis of IDI data, they found that 85% of the difference in tertiary performance between Māori and Pākehā can be accounted for in the pass rates in their first year of university study. Those that successfully gain 75% or more of their credits at first year are as likely to continue their studies and complete successfully. The Ministry of Education has done its own analysis around this and have come up with the alternative figure of 85%. We use this 85% figure in the remainder of this paper.

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[13] e.g. Rodgers, Lia, Ministry of Education. 2015. Education Pathways: Auckland. *Probability of achieving literary and numeracy credits based on attendance and lateness in year 8.*

[14] http://tekotahitanga.tki.org.nz/Publications

[15] Buntting, Cathy, Jones Alister, McKinley Liz, Gan Mark, STEM Initiatives and issues in New Zealand, Universities of Auckland and Waikato, 2013.

University sector experience indicates that three main elements are seen as most effective in getting students to a first-year pass rate of at least 85% - noting that only a small proportion Māori or Pasifika students would need all three elements;

- Structured culturally-appropriate support during the initial months at university to reduce risk of alienation and disengagement. This is particularly important for Māori or Pasifika students who are living away from home for the first time, come from lower-socio-economic backgrounds and/or are first in family to university.

- Foundation and/or bridging programmes before entering full time first year studies. This is particularly important for mature Māori or Pasifika students coming to university without University Entrance and for students with University Entrance but gaps in their academic ability for their chosen programme of study. However, it imposes additional penalties on these students – increasing the potential cost of their education and delaying when they achieve graduate earnings and other outcomes.

- Pastoral care and academic support. This is for students who are struggling academically or who are seen as being at high risk of struggling. For most New Zealand universities, any student commencing first year studies with a bare pass at UE, and/or who presents with other risk factors, or who is identified as disengaging or struggling academically will get support. Support is typically a dedicated mentor, three to four hours weekly of one-on-one tutoring weekly and other forms of counselling or support as determined on an individual basis. The average cost in first year of this sort of support is around $3,500-$4,500 per student to have a good chance of getting them to succeed at first year.

With the projection that 30% of New Zealand's workforce will be Māori or Pasifika by the 2030s, it will be important that institutions are able to mainstream these types of support.

2. Resourcing, incentives, and organisational arrangements

Universities New Zealand sees the following factors as likely to materially impede progress on most or all of the parity targets.

- There are not currently many goals or operating settings that require and incentivise universities and schools to work together. There are huge numbers of linkages between schools and universities around New Zealand but they tend to be locally driven and depend upon personal relationships and good will. In some instances, the secondary sector is not always receptive to what they see as interference on the part of the universities in the secondary space.

- A lot is expected of universities, but funding and capacity to respond to every expectation is limited. Current equity funding is largely limited to $320 for Level 7 Māori and Pasifika EFTS and $444 for postgraduate Māori and Pasifika EFTS (plus $28.60 per total EFTS to be used for students with disabilities). This is regardless of their background, preparation for university, and/or personal circumstances and/or any other relevant risk factors. Not surprisingly, in this funding environment;

  o Universities are less likely to see value in directing limited resources to working with schools on students who are still 3-5 years from getting to university given a significant proportion are either unlikely to go to university or, if they do, may choose another university.

  o Universities are currently more likely to focus their very finite resources on students who are actually wanting to attend their university but who are not yet at the required academic standard. Universities are therefore much more interested in investing in foundation, bridging and induction programmes.

o With the same funding per student (regardless of need) and institutions facing major funding pressures overall, universities are forced to limit how much support they can afford to offer individual students – regardless of the potential wider societal benefits of helping these students succeed.

Overall, the one-size-fits-all equity funding mechanism is not putting incentives or resources where they are going to make the greatest difference.

3. Unpicking the risk factors associated with Gap 5 (Retention), and Gap 6 (Completion)

With Gap 4 (Participation – the proportion of students with UE going to university) being just 2% between Māori and Pākehā students, and Gap 7 (Outcomes – the employment outcomes for students with a degree) being effectively nil (per table 3 below) or negative for Māori with a post-graduate qualification, these are seen as areas mainly for continued monitoring and general improvement.

Table 3 – Graduates aged 30-39 at the 2013 Census by Ethnicity by whether they were in degree-level employment or not[16].

	European Pākehā	Māori	Pasifika	Asian	Other	Avg
Graduates (Lvl 7-10) In degree level occupation	86.3%	85.5%	81.4%	71.4%	78.1%	82.7%
Graduates (Lvl 7-10) Under-employed	13.7%	14.5%	18.6%	28.6%	21.9%	17.3%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Postgrads (Lvls 8-10) in degree level employment	89.8%	89.9%	85.2%	78.1%	85.1%	87.1%
Bachelors (Lvl 7) in degree level employment	84.7%	84.2%	80.2%	68.4%	74.9%	80.7%

With the Gap 5 (Retention - the proportion of students passing at least 85% of their first-year course) being 18% between Māori and Pākehā, and Gap 6 (Completion - the proportion of students completing a degree) being 17% between Māori and Pākehā, these are the areas that appear to warrant the greatest focus by universities in lifting achievement for Māori.

As previously mentioned, IDI analysis suggests that the main predictor of successfully completing first year studies at university is engagement and performance at school – noting that it is not always clear whether performance at school can be influenced by a range of intrinsic and extrinsic factors to the student – ranging from aptitude, through to family support and school support. Nevertheless, if universities could have that performance and engagement information they could target support more effectively to individual students.

Unfortunately, current privacy policies mean that schools appear to be unable to share information on their students with universities and so universities will have to rely upon other information available to them to assess risk and to target support.

Between late 2014 and mid-2015 researchers at three universities (Victoria University of Wellington, the University of Canterbury, and the University of Otago) sequentially carried out multivariate analysis trying to understand the extent to which ethnicity was a factor in first year achievement. They calculated a weighted Academic Preparedness Score (APS) for all students (calculated from

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[16] Based on a custom extract of Census Data provided by Statistics NZ. All occupations were assessed by UNZ to determine if they would probably require a degree (for example, teacher, nurse, policy analyst, general manager, etc) and the results were applied consistently to all ethnicities.

their NCEA results), and the Grade Point Average (GPA) for the same students at the end of their first year.

Academic Preparedness Score (APS) is calculated off the best 80 credits a student is awarded at Level 3 NCEA (with no more than 24 credits maximum per subject). The maximum a student can score is 320 based on 4 points for each Excellence credit, 3 points for each Merit credit, and 2 points for each other credit.

Grade Point Average is calculated by awarding points for each grade gained in a course and averaging them. An 'A+' grade gives 9 GPA points. A 'B' grade is 5 points, a 'C' grade is 2 points, a 'C-' is 1 point and all grades below 'C-' are zero points.

Because the research was done sequentially with each successive university building upon and extending the methodology and findings of the previous study, the studies do not provide perfectly comparable results. Nevertheless, key findings were;

- Ethnicity, at most, accounts for between 1% and 10% of the observed difference in performance at first year.
- On average Māori (and Pasifika) students had significantly lower APS scores and GPAs than other students. APS scores accounted for over half the variation in GPAs.
- Where students had NCEA credits in physics, chemistry and calculus, their first year GPA performance was positively affected.
- Where students had NCEA credits in religious studies, physical education, photography, painting, and media studies, their GPA performance was negatively affected.

The University of Otago study concluded that the APS scores of Māori and Pasifika students are more likely to include NCEA subjects that don't adequately prepare them for their chosen course of study at university (per the final two bullet points above).

The University of Canterbury study concluded an APS below 150 should be seen as a risk factor for Māori and Pasifika students. The University of Canterbury study also found that GPA performance for students with an APS above 270 was identical regardless of ethnicity.

Victoria University of Wellington (VUW) has subsequently provided analysis on Gap 6 (Completion of a Qualification by those who complete first year) and have found that GPA at the end of first year is the best predictor of GPA at the end of second year – learner gain is the same at this point irrespective of ethnicity. To calculate this, VUW took two years of data for undergraduate domestic students first enrolled in 2014 and compared their 2014 GPA against their 2015 GPA as a proxy for learner gain. The hypothesis was that learner gain would be the same irrespective of ethnicity. GPA change was used as it removed the differences in a priori ability. There was a sample of 3535 students (457 Maori, 215 Pasifika, 49 were both, and 2911 Other). Using a linear regression analysis VUW found that being Maori, Pasifika or any other ethnicity was not a factor determining GPA difference.

This analysis was replicated by Auckland University of Technology and the University of Waikato with the same conclusions. The combined results of these two universities are shown as Attachment C at the end of this paper. Though numbers are relatively small, the results can be summarised as follows;

- Performance throughout university remains correlated with initial academic preparedness.

- The largest difference in achievement is between first year and second year across ethnicities. There is almost no gap across ethnicities in participation at third year.

- There are some circumstances where GPA ends up higher for Māori or Pasifika students in the Lower APS bracket than in the Mid-APS bracket. Discussions with the universities suggest this

may be due to the additional time and effort invested in supporting these students. All students in the Low-APS category would have been identified as being at risk of succeeding at the time of their enrolment and support would have been targeted to them. But, again, small numbers mean care needs to be taken in not over-interpreting these figures.

From these analyses, achieving parity in GPA at Gaps 5 and 6 would actually require universities to get Māori and Pasifika to achieve at far higher levels in terms of learner gain than for other students.

Indicative Risk Profile – Gap 5 (students successfully passing at least 85% of first year courses)

The analysis below is based on the cumulative Academic Preparedness Score (APS) and Grade Point Average (GPA) information from the University of Auckland, Auckland University of Technology, and the University of Waikato. It covers the APS and GPA information for all European Pākehā and Māori students whose first year of enrolment was 2017.

In the absence of information on what NCEA subjects students took at school, the gap analysis has been done on APS only.

		European Pākehā				**Māori**			
		Totals	**Lower APS**	**Mid APS**	**High APS**	**Totals**	**Lower APS**	**Mid APS**	**High APS**
		Totals	APS <150	APS 150-270	APS >270		APS <150	APS 150-270	APS >270
% in APS Category	a	**100%**	6%	59%	35%	**100%**	12%	66%	22%
Started university (Head Count)	b	**4,480**	263	2,630	1,587	**925**	114	610	201
Weighted GPA at end of first year	c	**4.8**	3.5	4.1	6.1	**4.1**	3.3	3.6	5.8
Passed at least 85% of first year courses	d	**3,457**	144	1,841	1,472	**567**	50	345	172
Pass rate as % of total entering university	e=d/b	**77%**	55%	70%	93%	**61%**	44%	57%	86%
Combined overall percentage getting 85% at first year	f=d/b	**77%**				**61%**			
Difference between Māori & Pasifika = **Gap 5 (Retention)**	G=77%-61%	**16%**							
APS score at 20th percentile of those entering university	h	196				167			
APS score at 80th percentile of those entering university	i	290				269			
Average secondary school decile (one university only)	j	7.4	7.0	7.3	7.8	5.7	5.5	5.6	6.5

Though the results cover just one year and only include data from three universities, the *(row g)* gap of 16% is relatively close to the average national gap of 18%. The results reinforce the findings of the Victoria University of Wellington, University of Canterbury, and University of Otago studies. Some key observations are;

1. End of first year GPA remains broadly correlated with start of first year APS. A student with a low APS is likely to have a lower GPA independent of ethnicity.

2. Māori students are more likely on average to start university with a lower APS than Pākehā students. Māori students therefore typically finish first year with a lower GPA than Pākehā students.

3. One of the three universities also reported average school decile of Pākehā and Māori students in each APS band. Pākehā students entering university came from schools with a decile

averaging 7.4 whereas Māori students come from schools with a decile averaging 5.5. School decile appears to correlate somewhat with APS – though caution should be taken in inferring too much from the information available. We know from Education Counts that 44% of Māori and 58% of Pasifika are at Decile 1-3 schools, compared with 8% for European Pākehā. And 24% of Māori, and 19% of Pasifika are at Decile 7-10 schools, compared with 63% European Pākehā.

These observations are borne out further by looking at Pasifika APS and GPA information – provided in Attachment B.

A discussion with several people leading academic support functions in universities indicates that;

- A Māori student presenting with Lower APS score would more or less automatically be provided with additional mentoring and support, including an average of 3 hours of additional tuition weekly. They would budget around $3,500 to $4,500 per student to be relatively certain of getting that student to an 85% pass rate in their first year.

- For Māori students in the middle APS range additional targeted induction and orientation support was advised for all students, and that a proportion (perhaps 20%) would require additional targeted support.

- For Māori students in the high APS range, some general induction and orientation support would always be useful, but additional academic support was usually not required.

This sort of support is 'in the main' and does not reflect that, regardless of APS, individual students may require a range of individualised support. Additionally, risk may be increased or reduced by a range of other institutional factors, such as; interactions with individual teachers and their perceptions or biases, pedagogy, curriculum design and workload, peer support network, and sense of belonging.

Note that this analysis only includes students who come to university directly from school.[17] New non-school leaver students may have different barriers to entry and present additional or different risk factors with respect to retention and completion (including for those who are older, balancing study alongside work and family commitments, and under financial pressure).

4. Identifying, evaluating, and sharing good practice

In a recent initial stocktake of seven of New Zealand's eight universities, 341 initiatives were identified aimed at lifting participation and achievement of Māori, with a combined expenditure of $10.5m (estimated to be over $12m for the entire university sector).[18]

We know that there is excellent work taking place among these initiatives, but also know that not all have been formally evaluated.[19] The following table highlights a few of the initiatives that are seen as examples of good practice.

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[17] In 2016, a total of 19,360 university domestic first-year enrolments were school leavers, or 82% of all first-year enrolments (excluding those who listed their prior activity as overseas). Source: Ministry of Education/Education Counts, Tertiary Statistics, Participation – Provider Based Enrolments 2016 ENR.22.

[18] UNZ work in progress. Some initiatives may also be open to other groups of priority students.

[19] All initiatives are subject to internal monitoring.

Examples of current initiatives partly or wholly funded by Equity Funding[20]

Initiative	Category	Overview	Evaluated	Approx. Participation	Avg. Progression Rate/Ach/Completion Rate
Māori and Pacific Admission Scheme (MAPAS) [University of Auckland]	Targeted Admission Scheme	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. 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.	Yes	368 First Year Cohort 2008-2012 Approx. 60:40 (Pacific to Māori)	Achievement rate for all course in First Year Tertiary Study 5.4 times higher for those who followed MAPAS advice.
Tū Kahika and Te Whakapuāwai [University of Otago]	Transition, Academic and Learning Support: Māori Health Workforce Development Unit	Tū Kahika Scholarship: Culturally responsive foundation year transition programme. Te Whakapuāwai: Health Science First Year (HSFY) Māori student support and achievement programme. Both programmes include intensive wrap around support.	Yes	20 Scholarships (2016-2017) 140-150 participants (2016-2017)	85% average progression rate 47% average progression into professional programmes
Pūhoro STEM Academy [Massey University]	STEM	The Pūhoro STEM Academy (Pūhoro) 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. Students participate in Career Aspiration classes, tutoring, campus visits for Pūhoro STEM exposure days, and mentoring.	Yes	97 Māori Secondary School Students (2016)	Pūhoro results are above the national average for external achievement standards AS90940 – 76% vs. 74% AS90944 – 87% vs. 67% AS90948 – 76% vs. 72%
Tuākana Learning Community [University of Auckland]	University-Wide Learning Initiative	The Tuākana programme is based around the principles of the Tuākana-Teina relationship which is integral to Māori society. Every faculty and department has developed and contextualised the concept of Tuākana to meet their own programme needs, but this usually includes: Tutorials, academic and learning support services, wānanga and dedicated learning spaces.	Yes	Approx. 78% of total Māori students participated	85% completion rate for participants at undergraduate level

*Estimated for 2016 and will vary with different levels of participation. It may not reflect recent chanAPS in the programme. Cost may also be shared between faculty and other sources such as external government agencies, or other external funding sources.

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[20] See Te Kāhui Amokura: Sharing Good Practice Case Studies

Other examples of current initiatives*

Initiative	Category	Overview	Approx. Participation	Approx. Annual Cost*	Link
Te Rōpū Āwhina [Victoria University]	Academic and Learning Support	Māori student mentoring for students in the Science Engineering, Architecture & Design programmes. Awhina also provides pastoral support to all SEAD students as well as an outreach programme to intermediate and secondary schools.	Approx. 800	$320K	https://www.victoria.ac.nz/students/support/learning/awhina
Te Pūtahi Atawhai Mentoring Programme [Victoria University]	Academic and Learning Support	Academic mentoring for Māori and Pasifika Students at all levels attending Victoria University. A dedicated space is also provided for these students.	Approx. 385	$128K	https://www.victoria.ac.nz/students/get-involved/lead-mentor/te-putahi-atawhai
Ekea – Recruitment Programmes [University of Canterbury]	Recruitment and Transition	The Ekea programme has a range of different events designed and targeted towards the different levels of secondary school students across the region. These are Māori specific events for Year 10-Year 13.	Approx. 320	$20K	See Canterbury website
Pre-enrolment phone calling project – transitioning new to UC Ākonga [University of Canterbury]	Transition and Pastoral support	Advisors will call students for inviting them to an individual pre-orientation study preparedness discussion. This project assists Advisors to develop a rapport and relationship with fresher students before they start study for the year. This project also aims to increase the conversion of pre-enrolled students to full enrolment through offering individualised and targeted advice.	Approx. 480	$10K	See Canterbury website
Dedicated Cultural Support Activities [Lincoln University]	Pastoral and Cultural Support	Dedicated programme of events and support activities for Māori students to feel engaged and connected to the university.	Approx. 114	$10K	See Lincoln website
Hand up Programme [Auckland University of Technology]	Pre-degree and Transition Programme	The programme is designed to support student successfully complete certificate and to prepare them for degree. Input from teaching staff is integral in the design. The semester-based certificate requires intensive support.	Approx. 56	$10K	See AUT website
He Korowai Mana Kē – Empowering Futures [Auckland University of Technology]	Academic and Learning support services	All first year Māori students are invited to connect with a Tāura Kaiwhatu (academic and content mentor) through the 'He Korowai Mana Kē – Empowering Futures' mentoring programme. Students develop successful	Approx. 63	$18K	https://www.aut.ac.nz/being-a-student/current-undergraduates/academic-

		learning strategies through mentoring from high achieving 2nd and 3rd year Māori students.			information/academic-and-study-support
Te Ara ki Angitū: Pathways to Excellence [University of Waikato]	Access, Transition, Academic and Learning support	The programme includes, transition support from high school to University including access to a subsidised, Wi-Fi bus. Support and mentoring while at University. Access to a portal learning device and a scholarship of $5K. This programme is offered to all students. Not specifically a Māori programme.	110 Scholarships awarded (2016)	$500 – 550K Scholarships only Does not include associated pastoral support costs	http://www.waikato.ac.nz/study/why-study-at-uow/te-ara-ki-angitu
Starpath programme [University of Auckland – Auckland Region]	Data, Transition, Secondary School	Starpath is based at the University of Auckland's Faculty of Education and Social Work. It uses an evidence-based approach to help transform patterns of educational achievement in New Zealand secondary schools. Over the years Starpath has worked with nearly 40 mid-to-low decile schools, implementing a data tracking, target setting and academic counselling initiative to raise NCEA pass rates.	Approx. 40 schools	$700-850K	http://www.education.auckland.ac.nz/en/about/research/starpath-home.html
Science Wānanga [University of Otago]	STEM, Secondary School	Staying on marae for three days with university students, scientists and kaumatua, students get to do real science in their local communities. Wānanga encourage us all to explore the connections between science, Mātauranga Māori and our lives, especially the links between human health & environmental health.	Approx. 200 students participate	$90-120K	http://www.otago.ac.nz/science-wananga/index.html
Commuting and Travel Grants and Scholarships	Access	Several universities are now offering support in the form of travel/commuting grants.	Varies across institutions	Cost varies per scholarship	University scholarship paAPS
Te Pūtahi Atawhai Mentoring Programme [Victoria University of Wellington]	Academic and Learning Support, Mentoring	Te Pūtahi Atawhai has culturally safe places where Māori and Pasifika students can study and seek advice. Students have access to study spaces, and opportunities for students to design their own "kete": an individual success package covering your personal, academic, family and sporting commitments.	Approx. 385 students participate	$200-260K	https://www.victoria.ac.nz/students/get-involved/lead-mentor/te-putahi-atawhai

* This list is only a small proportion of the numerous initiatives across all New Zealand universities supporting Māori and Pacific students. Estimated cost for 2016 and will vary with different levels of participation. It may not reflect recent chanAPS in the programme. Cost may also be shared between faculty and other sources such as external government agencies, or other external funding sources.

What is the solution?

Universities consider that there are nine interlinked changes that would cumulatively result in a real closing of parity gaps for Māori and Pasifika and that could see true parity being achieved over a 20-year period. In broad terms, it requires (a) joined up policy and strategy, (b) the right measures and incentives to focus all relevant players on the parity goal, and (c) resourcing in a form and at levels that will genuinely drive results by supporting and incentivising already over-stretched schools and universities. The nine changes are:

1. **One joint approach** - One point of ownership for strategy, policy, management reporting, evaluation and funding for system parity goals. Parity can't be achieved without all parts of the compulsory and post-compulsory education systems working together under one integrated Government strategy and set of goals.

   The one joint approach, should then encompass all eight of the following elements;

2. **Measures and business intelligence reporting** - Develop an agreed set of measures around each of the key Parity Gaps to underpin the joint approach. Support them with business intelligence tools and reporting to identify issues, opportunities, and good practice.

3. **Make teaching a more attractive option for STE(A)M qualified graduates** – even if this just means paying more for those teaching in schools in rural, lower-socio-economic area or those who are speakers of Te Reo Māori.

4. **Bring universities into Communities of Learning** – Extend the mandate of Communities of Learning to formally include relevant tertiary education providers (the local university, ITP and/or Wānanga). Resource and encourage schools to purchase Years 12 and 13 teaching services from appropriately trained university academic staff where they are unable to secure their own specialist STEM teachers and/or facilities.

5. **Student Achievement Planning at School** - Identify high-potential Māori and Pasifika youth at risk of underachievement. Work with them and their families to develop and implement individual study and career plans. Support this with good advice on NCEA subjects and appropriate pastoral care. Replace school 'Careers Services' type functions with pathways advisory functions that can provide this more targeted analysis, advice, planning, and support to students, their families, and their teachers.

6. **Grow pathways to university** - Extend STAR type programmes to high-potential at-risk Māori and Pasifika youth so they develop familiarity with universities and are more likely to aspire to university study.

7. **Foundation and bridging programmes** – For at least the middle-term, a (hopefully declining) proportion of school leavers are going to continue needing additional foundation or bridging support to ensure they transition successfully into the university academic and cultural environment. Ensure policy and funding support these programmes. Exclude Foundation and Bridging Programmes from affecting Fees Free eligibility. Similarly, do not count Foundation and Bridging towards the five-year Study Link entitlement. To improve the transition from school to university, reinstate funding for universities to provide foundation and bridging programmes – so students can complete these programmes on university campuses.

8. **Evaluation to formally identify and share good practice**. There are many initiatives underway each with their own set of passionate advocates. There is little formal evaluation of these initiatives to understand what is really working and why. There is even less sharing of good (and bad) practice – with the consequence a lot of effort is probably being wasted and a lot of opportunities are being overlooked. There should be a separate centrally

administered fund for commissioning formal evaluation and identifying and sharing good practice.

9. **Supplement Equity Funding with additional targeted funding**. Equity funding has been valued within universities as a mechanism for fostering new innovative channels for lifting participation and achievement by Māori and Pasifika. However, it has been insufficient for mainstreaming many worthy initiatives, such as those outlined above (items 2-8), that would be most effective in really achieving parity in a reasonable timeframe.

Attachment A – Gap analysis

Source: Ministry of Education (IDI analysis), 15 March 2018. Produced at the request of Universities New Zealand – Te Pōkai Tara

2009 school leavers	Numbers				Percent of total cohort				Percent of each stage			
	Total	Pākehā	Māori	Pasifika	Total	Pākehā	Māori	Pasifika	Total	Pākehā	Māori	Pasifika
Total leavers	58,685	38,270	11,590	5,875	100%	100%	100%	100%	100%	100%	100%	100%
Retained to year 13 and/or attained UE	41,740	27,935	6,220	4,225	71%	73%	54%	72%	71%	73%	54%	72%
Left with UE	20,450	15,315	1,495	890	35%	40%	13%	15%	49%	55%	24%	21%
Attained more than 30 NCEA credits in Level 3 STEM	9,095	6,590	395	220	15%	17%	3%	4%	44%	43%	26%	25%
(Attained UE through Non-NCEA qualifications) *	*1,210*	*710*	*30*	*15*	*2%*	*2%*	*0%*	*0%*	*6%*	*5%*	*2%*	*2%*
Entered University degree study or above by 2011	18,300	13,240	1,265	865	31%	35%	11%	15%	89%	86%	85%	97%
Passed at least 85% of first year courses	12,705	9,650	695	360	22%	25%	6%	6%	69%	73%	55%	42%
Completed a degree qualification or higher within 6 years **	13,880	10,280	765	455	24%	27%	7%	8%	76%	78%	60%	53%
Not completed and still enrolled after 6 years **	1,115	710	120	100	2%	2%	1%	2%	9%	7%	17%	28%

* Proportion of those attaining UE.   ** Proportion of those entering study.

Technical notes:
- Data rounded to base 5.
- Counts are for domestic school leavers only.
- Ethnicity is based on total response reporting.
- University Entrance includes attaining equivalent qualifications through Cambridge and IB systems, and only includes those who attained UE with a Level 3 school qualification.
- Level 3 STEM credits are from achievement standards at Level 3 that are classified in the Science, Maths or Technology learning areas.
- Proportion attaining UE through non-NCEA qualifications is shown to indicate the proportion for whom subject information is not available.
- Entered University degree study or above includes those who entered without attaining UE.
- Completed a degree qualification or higher includes qualifications completed at any provider, not just universities.
- Still enrolled after 6 years counts people who were enrolled at degree level and above at any provider in year 7.

Attachment B – Gap 5 Analysis (Proportion of students successfully completing 85% at first year) – Including Pasifika

APS = Academic Preparedness Score (based on NCEA Level 3 results at school) GPA = Grade Point Average at end of first year of university.		European Pākehā				Māori				Pasifika			
		Totals	Lower APS	Mid APS	High APS	Totals	Lower APS	Mid APS	High APS	Totals	Lower APS	Mid APS	High APS
			APS <150	APS 150-270	APS >270		APS <150	APS 150-270	APS >270		APS <150	APS 150-270	APS >270
% in APS Category	a	100%	6%	59%	35%	100%	12%	66%	22%	100%	16%	70%	14%
Started university (Head Count)	b	4,480	263	2,630	1,587	925	114	610	201	1,110	177	779	154
Weighted GPA at end of first year	c	4.8	3.5	4.1	6.1	4.1	3.3	3.6	5.8	3.0	2.3	2.8	4.9
Passed at least 85% of first year courses	d	3,457	144	1,841	1,472	567	50	345	172	493	51	326	116
Pass rate as % of total entering university	e=d/b	77%	55%	70%	93%	61%	44%	57%	86%	44%	29%	42%	75%
Combined overall percentage getting 85% at first year	f=d/b	77%				61%				44%			
Difference bewteen Māori & Pasifika = Gap 5 (Retention)	g	16%											
APS score at 20th percentile of those entering university	h	196				167				156			
APS score at 80th percentile of those entering university	i	290				269				254			
Average secondary school decile (one university only)	j	7.4	7.0	7.3	7.8	5.7	5.5	5.6	6.5	4.0	4.0	3.8	5.7

This is for Pākehā, Māori, and Pasifika students who enrolled at the University Auckland, Auckland University of Technology, or the University of Waikato in 2017. The bottom row (average secondary school decile) comes from just one of those three universities.

Attachment C – Gap 6 Analysis (Completion of Qualifications) Combined results from two universities (AUT & Waikato)

Domestic Students Only - Head Count **APS**=Academic Preparedness Score (based on NCEA Level 3 results at school) **GPA**=Grade point average at end of each year of study		European Pākehā				Māori				Pasifika			
		Totals	Lower APS APS <150	Mid APS APS 150-270	High APS APS >270	Totals	Lower APS APS <150	Mid APS APS 150-270	High APS APS >270	Totals	Lower APS APS <150	Mid APS APS 150-270	High APS APS >270
% in APS Category	a	100%	11%	71%	18%	100%	19%	71%	9%	100%	21%	67%	13%
Started university (Head Count)	b	2,240	247	1,585	408	538	104	383	51	417	98	297	22
Passed at least 85% of first year courses (Head Count)	c d=c/b	1,670 75%	112 45%	1178 74%	380 93%	325 60%	42 40%	238 62%	45 88%	191 46%	25 26%	149 50%	17 77%
Weighted GPA at end of first year of those who passed at least 85% of first year courses	GPA1	5.49	4.72	5.16	6.70	5.10	4.72	4.93	6.28	4.72	5.00	4.49	6.31
Continued to second year of those who passed at least 85% of first year courses (Head Count)	e f=e/c	1,551 92%	101 91%	1,094 92%	356 93%	297 91%	37 72%	218 93%	42 97%	178 93%	23 88%	140 95%	15 85%
Weighted GPA at end of second year of those who passed at least 85% of first year courses	GPA2	5.23	4.43	4.96	6.28	4.81	4.23	4.70	5.87	4.47	4.40	4.35	5.89
Passed at least 85% of second year courses (Head Count)	h i=h/e	1,401 91%	93 91%	966 89%	342 97%	244 82%	27 89%	177 80%	40 92%	142 80%	19 86%	109 77%	14 97%
Correlation coefficient between weighted GPAs at end of first year and end of second year (rows GPA1 & GPA2)	j	0.76	0.60	0.72	0.82	0.67	0.62	0.63	0.62	0.70	0.67	0.66	0.73
Continued to third year of those who passed at least 85% of second year courses (Head Count)	k l=k/h	1,370 98%	89 96%	946 98%	335 98%	240 98%	27 100%	174 98%	39 98%	138 97%	19 100%	105 96%	14 100%
Percentage getting to third year of those who started university	m=k/b	**61%**	**36%**	**60%**	**82%**	**45%**	**26%**	**45%**	**76%**	**33%**	**19%**	**35%**	**64%**
GPA at end of first year at 20th percentile		2.9	1.3	3.0	5.6	2.0	1.2	2.1	5.0	0.9	0.0	1.3	3.6
GPA at end of second year at 20th percentile.		3.4	2.3	3.3	5.6	3.1	2.6	3.1	5.4	1.9	2.0	2.0	4.7
GPA at end of first year at 80th percentile		6.6	4.9	6.0	7.9	5.8	5.0	5.6	7.3	4.9	4.2	4.7	7.2
GPA at end of second year at 80th percentile.		6.8	5.4	6.3	8.0	6.0	5.0	5.9	7.8	5.4	4.8	5.1	7.0

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This table contains information on students from two universities – Auckland University of Technology and the University of Waikato. Student numbers have been added together, and percentages and GPAs are all weighted averages.

As numbers of students are relatively small in some columns, care should be taken to not over-interpret the numbers. Nevertheless, the following conclusions are suggested;

- Performance throughout university remains correlated with initial academic preparedness.

- The largest difference in achievement is between first year and second year across ethnicities. There is almost no gap across ethnicities in participation at third year.

- There are some circumstances where GPA ends up higher for Māori or Pasifika students in the Lower APS bracket than in the Mid-APS bracket. Discussions with the universities suggest this may be due to the additional time and effort invested in supporting these students. All students in the Low-APS category would have been identified as being at risk of succeeding at the time of their enrolment and support would have been targeted to them. But, again, small numbers mean care needs to be taken in not over-interpreting these figures.