Māori university graduates: Indigenous participation in higher education

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Abstract

Māori, the indigenous population of New Zealand, are gaining university qualifications in greater numbers. This article describes the history of Māori university graduates, their current situation and the implications for indigenous futures. Section one provides a brief overview of historical policies and practices that, similar to those used on other indigenous populations, resulted in the widespread exclusion of Māori from university education until the 1970s and 1980s. Section two describes findings for Māori university graduates (n=626) from the Graduate Longitudinal Study New Zealand (GLSNZ). Results show that nearly half (48.4%) were the first member of their immediate family to attend university. Humanities/Education (50.8%) was the most common domain of study followed by Commerce (17.7%), Science/Engineering (15.4%), Health Sciences (10.9%), Law (2.8%) and PhD study (2.4%). More Māori graduates were females (71%). One third of graduates were parents, and being a parent was associated with a lower likelihood of studying science and engineering compared to those participants without children. The most common areas/fields that participants wished to work in post-graduation were education and training (28.3%), health care and medical (17.4%) and government (11.8%). Despite increases in higher education participation and completion, parity remains an issue. Similar to previous indigenous research findings, Māori are under-represented as graduates (7.1% of the total sample) and in particular as postgraduates (5.8%) considering that Māori constitute 14.9 percent of the New Zealand population. Contemporary indigenous graduates are critical for indigenous development. Over the next 10 years, the GLSNZ will follow graduates and provide insights into Māori graduate outcomes.

Key words: indigenous education, Māori, higher education, university graduates, university students

Indigenous university education – historical state policies and practices

From earliest contact with European (Pākehā) settlers, Māori, the indigenous

population of New Zealand, sought to gain access to Pākehā technology and knowledge,

including numeracy and literacy, to augment their own knowledge. Māori contributed land

and money to establish schools initially run by missionaries (Simon, 1992; Ward, 1974). Reid

(2006) describes five different phases of state education in New Zealand: (i) co-operation or

pre-annexation (1816-1840), (ii) assimilation (1840-1960) following the signing of the Treaty

of Waitangi in 1840, (iii) integration (1960-1974), (iv) multiculturalism (1974-1984), and (v)

biculturalism (1984- present). Under official policies of assimilation, racism grounded in

notions of biological essentialism (inferiority based on appearance or biological makeup) was

used to rationalise the under-educating of Māori (Waitangi Tribunal, 1999). In 1862, Harry

Taylor, the first full-time New Zealand school inspector, stated:

> I do not advocate for the Natives under present circumstances a refined education or
>
> high mental culture; it would be inconsistent if we take account of the position they
>
> are likely to hold for many years to come in the social scale, and inappropriate if we
>
> remember that they are better calculated by nature to get their living by manual than
>
> mental labour (cited by Simon, 1992, p. 6).

This attitude continued into the 20th century. A 1916 government report outlined the

policy of focusing on industrial or domestic secondary education for Māori to equip them for

work deemed best suited to them (New Zealand Government, 1916). In both native and

public schools, a non-academic, technical curriculum severely restricted access to higher

education, limited life chances and resulted in a Māori working class (Hook, 2008; Simon,

1992). Experiences of Māori students were both similar and different to other indigenous

peoples living within developed western democracies. Unlike Māori, many Australian

Aboriginal, American Indian and First Nation Canadian children were forcibly removed from their homes and placed in residential schools to be 'civilised'. However, the curriculum taught in residential schools also focused on teaching students practical skills to enable manual work in farm labour for males and domestic labour for females (Smith, 2009).

There was some early support for Māori students to succeed academically. In the late 1800s, John Thornton, the principal of Te Aute College, began to tutor his most promising Māori male pupils for the University of New Zealand matriculation exam (Barrington, 1993) including the first Māori university graduates; Sir Apirana Ngata, Sir Peter Buck (Te Rangi Hīroa) and Sir Maui Pomare. Thornton said he saw a time when Māori would want their own doctors, lawyers and clergymen and felt it 'just' to equip Māori with the ability to enter into higher education, especially at a school with a Māori endowment (Barrington, 1993). However, following a 1906 Royal Commission inquiry into the teaching practices at Te Aute, the College was instructed to comply with the Māori educational curriculum of manual and technical classes in agriculture (Openshaw, Lee, & Lee, 1993). Counter to government directives, academic subjects continued to be taught at the school, resulting in the withdrawal of government scholarships.

Internationally, the profound educational disadvantage suffered by indigenous peoples began to be recognised in the 1960s (Gray & Beresford, 2008). In 1961, the Hunn Report described the 'statistical black-out' of Māori in post-compulsory education (Hunn, 1961). Māori students were largely invisible within universities except for those few who had been encouraged in mostly Māori high schools to achieve in education. These graduates would go on to become academics, lawyers, doctors, teachers and members of parliament who became role models for Māori educational opportunity. By the 1970s, young, educated, urban Māori,

such as Ngā Tamatoa[1], agitated for greater respect of Māori knowledge and values. This

contributed to a revitalisation of the Māori language and progress in Māori education (Harris,

2004). This paralleled the development of indigenous rights movements in other countries

including the United States, Canada and Australia (Adams, 1995).

This article focuses on policies that impacted on Māori participation in state higher

education. However, it is important to note that both formal teachings of sacred and esoteric

knowledge within whare wānanga (schools of higher learning) and *ako* described as relating

to the wider definition of pedagogy within a Māori context (Mead, 2003; Pihama, Smith,

Taki, & Lee, 2004) were also negatively and extensively affected by colonisation (Waitangi

Tribunal, 1999).

Despite historical barriers to higher education, substantial increases in Māori

participation have occurred in a short period of time (Durie, 2009). Māori students currently

account for approximately 20 percent of domestic tertiary students (Wensvoort, 2013). The

proportion of Māori participating in non-degree tertiary study is now higher than for any

other ethnic group (Ministry of Education, 2013b). Moreover, the proportion of Māori with a

bachelor's degree qualification or higher increased from 4.5 percent in 2002 to 7.9 percent in

2012 (Ministry of Education, 2013b). These changes have encompassed participation in

higher learning and participation *as* Māori – along with greater acknowledgment of

mātauranga Māori (Māori knowledge). Contributing to this has been the establishment and

recognition of tribal tertiary education institutions and Whare Wānanga providing a Māori-

led alternative pathway to higher education. This has been paralleled with 'by Māori for

Māori' developments in other sectors such as health, where there have been rapid increases in

the number of Māori providers. Beyond university walls, increasing numbers of graduates

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[1] Ngā Tamatoa were a Māori activist group that originated in Auckland. They lobbied for the teaching of Māori language in schools and Māori rights under the Treaty of Waitangi

have resulted in increased Māori capability in the professions (Durie, 2009). Reasons for increases in Māori participation and completion in universities include (i) Māori student support systems (e.g. liaison officers, mentors, cultural 'spaces'), (ii) affirmative action and bridging programmes, (iii) increased Māori research capability (e.g. indigenous methodologies, targeted research funding), (iv) Māori academic and support staff, and (v) policies and strategies (Māori participation in governance) (Airini et al., 2009; Nikora, Levy, Henry, & Whangapirita, 2002).

The proportion of Māori with a bachelor's degree or higher is still lower than for the overall population, with even fewer Māori undertaking postgraduate study (Ministry of Education, 2013b). Similar disparities exist for other indigenous populations and reducing these gaps is a common current challenge (Behrendt, Larkin, Griew, & Kelly, 2012; Gray & Beresford, 2008; The Association of Universities and Colleges of Canada, 2011). Moreover, indigenous students remain under-represented in certain fields of study, particularly in the sciences (Behrendt et al., 2012; Hook, 2008) and have lower retention and completion rates overall compared to mainstream students (Marks, 2007; Te Puni Kōkiri, 2012a). Researchers have described a number of environmental and institutional barriers to successful indigenous university participation including: difficulty in transition and adapting to unfamiliar and sometimes unwelcoming tertiary environments, financial obstacles, racism, and not feeling confident to seek help (Jefferies, 1997; Nikora et al., 2002; van der Meer, Scott, & Neha, 2010).

Due to the current underrepresentation of Māori university students, Māori in the professions and an entrenched background of educational marginalisation and disadvantage, there is a need to monitor Māori graduate outcomes. Monitoring is also a way of documenting Māori potential, excellence and emerging leadership. Moreover, outcomes are a critical measure of quality for all tertiary education providers and the success of the current

New Zealand Education priority of Māori enjoying success at higher levels (Ministry of Education, 2013a; Ministry of Education and the Ministry of Business Innovation and Employment, 2014).

Increasing indigenous participation has an economic imperative as high quality tertiary education is a key driver of economic competitiveness internationally (Santiago et al., 2008). The Māori economic development strategy – 'He Kai Kei Aku Ringa' recognises the need for greater educational participation and performance (Te Puni Kōkiri, 2012b). Higher Māori educational achievement is associated with employment, higher incomes and better health (Te Puni Kōkiri, 2010). Furthermore, a number of national and international studies show both private benefits (e.g. employment) and societal benefits (e.g. reduced poverty, increased rates of community service) of higher education (Baum & Payea, 2004; Topitzes, Godes, Mersky, Ceglarek, & Reynolds, 2009).

Graduate surveys

Graduate surveys provide an effective and informative way of building evidence-based insights on graduate outcomes (Edwards & Coates, 2011). However, there have been few large, international long-term studies of graduate outcomes, particularly for indigenous students. In 2011, Edwards and Coates surveyed Australian bachelor degree graduates (n=9238, 12% response rate) who were participants in the Graduate Pathways Survey five years after course completion. Despite a small sample of indigenous participants (n=60), they found that indigenous graduates were slightly more likely to be employed (96.6%) compared to non-indigenous graduates (90.9%). Indigenous graduates were also more positive about the benefits of their degree to their work and long-term career goals. Previous studies have shown that indigenous Australian workers have much lower incomes compared to non-indigenous workers (Norris, 2001). However, data drawn from the 1999-2011 waves of the

Australian Graduate Survey showed that the gap between indigenous graduate wages and non-indigenous graduate wages was very small (3%) (Li, 2013). Such findings suggest that the value of higher education may be comparable for indigenous graduates and non-indigenous graduates.

The Graduate Longitudinal Study New Zealand

The Graduate Longitudinal Study New Zealand (GLSNZ) is an ongoing, longitudinal project that, over a 10 year period, will investigate the employment, health, and social outcomes of graduates (Māori and non-Māori) from all eight New Zealand universities. To date, most information on Māori university graduates has come from either: (a) cross-sectional information on enrolment or completion rates collected by government agencies or; (b) qualitative studies. The current study describes baseline descriptive findings for Māori GLSNZ participants including (a) their background and characteristics, (b) what they studied, (c) how they studied, and (d) future plans post-graduation. We also examined differences between male and female participants and looked to identify factors associated with domain of study and postgraduate status.

Methods

Participants

Participants were members of the GLSNZ. The study design has been described in detail previously (Tustin et al., 2012). In short, the GLSNZ conducted baseline sampling across the eight New Zealand universities between July and December 2011. A randomly-selected representative sub-sample of all potential graduates that year was identified (approximately 30% of the expected total) and invited to take part in an online baseline survey and in three follow-up online surveys over the next decade. All international PhD students were invited to participate and all students from the smallest university (Lincoln University). Participants were those in a programme of study allowing them to graduate with a bachelor's degree or higher after successful completion of their studies in 2011.

Procedure

Eligible students were contacted by letter and email. Non-responders and non-completers were sent multiple reminder emails, and contacted up to four times by trained call centre staff.

We achieved 72% participation in some form (i.e. students answering some but not all of the questions). A conservative criterion of full completion of the survey (400+ questions taking an average of 36.2 minutes to complete) was required for ultimate inclusion in the sample, resulting in a founding cohort of $N = 8719$ (or 65.2%).

Importantly, the questionnaire was piloted with Māori students, and Māori individuals and groups were consulted at each individual university. Consultation was also undertaken with Te Kāhui Amokura (Universities NZ Māori Consultation Committee) and the Ngāi Tahu Māori Consultation Committee. Consultation feedback included (a) suggestions for questions

to be incorporated in the survey (e.g. a Māori language fluency question), (b) the importance of creating Māori specific reports tracking the experience and outcomes for Māori graduates, and (c) the importance of dissemination of study findings to relevant Māori organisations. Māori participants who were slow to respond to completing the survey were contacted by Māori call centre staff. The GLSNZ has a Māori research policy that highlights the need to maximise the study's contribution to improving Māori outcomes. Researchers are required to partner with Māori GLSNZ investigators for any analyses that focus on Māori participants. To date, information from findings from the baseline study has been disseminated to a number of Māori stakeholders. Their feedback has resulted in additional analyses which are reported in this article.

The New Zealand Multi-region Ethics Committee approved this study.

Measures

Analyses in the present study are based on the selected GLSNZ survey variables described below.

Ethnicity, descent, Te Reo Māori (Māori language) fluency. Ethnicity was self-reported using standard questions from the New Zealand Census, which allow multiple ethnic identities to be selected. Participants were also asked about Māori descent (i.e. having a Māori birth parent, grandparent or great-grandparent, etc.) and whether they knew the name(s) of their iwi (tribe/tribes). Participants also rated how fluent they were in Te Reo Māori.

Socio-demographic variables. Information was collected on self-reported age, sex, current living situation, relationship status, parenthood, employment, being the first person in their immediate family to attend university (first generation students), and the education level of the participant's most highly-educated parent/caregiver.

University variables. University-supplied information on mode of study (e.g. intramural), equivalent full-time student (EFTS) load, degree level (e.g. undergraduate) and domain of study (e.g. science) was collected. Participants reported the reasons why they chose their field of study.

Career aspirations and future plans. Participants were asked about their future plans including (i) what they hoped to be doing in the next two years, (ii) the areas/fields that they would be seeking employment in, (iii) the future benefits of an education, and (iv) what they were looking for in a job.

Health and wellbeing. Participants reported if they had a long-term medical condition, disability or impairment.

All analyses were conducted using SPSS v22.

Results

Of the 8719 participants in the total GLSNZ sample, 764 (8.7%[2]) reported being of Māori descent. Of those, 670 participants (7.7% of the total sample[2]) knew the name(s) of their iwi (tribe). Self-identified ethnicity (Māori ethnic group) as opposed to descent, is the most commonly used measure for the purposes of social statistics, policy and planning (Robson & Reid, 2001). Having Māori ethnicity was reported by 626 participants (7.1% of the total sample[2]), who are described as the participants hereafter.

Characteristics of the Māori sample

The characteristics of the participants are presented in Table 1.

Table 1

Characteristics of participants by gender and by degree level

	Male (n=180)	Female (n=445)	Undergraduate (n=424)	Postgraduate (n=204)	Total (n=626)
Age, mean (SD)	28.0 (9.2)	29.7 (10.6)	26.4 (8.1)	35.2 (11.5)	29.2 (10.2)
Male gender, n (%)			127 (30.1)	53 (26.0)	180 (28.8)
Full-time study load, n (%)	119 (66.1)	277 (62.1)	314 (74.4)	82 (40.4)	396 (63.3)

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[2] Weighted for oversampling of International PhD students and students from Lincoln University

Intramural mode of study, n (%)	162 (90.0)	369 (82.7)	375 (88.9)	156 (76.5)	531 (84.8)
Course type, n (%)					
Bachelor's Degree	97 (53.9)	254 (57.0)	351 (83.2)		351 (56.1)
Conjoint bachelor's Degree	3 (1.7)	9 (2.0)	12 (2.8)		12 (1.9)
Bachelor's Degree & Diploma	1 (0.6)	2 (0.4)	3 (0.7)		3 (0.5)
Graduate Certificate/Diploma	26 (14.4)	30 (6.7)	56 (13.3)		56 (8.9)
Honours Degree	13 (7.2)	20 (4.5)		33 (16.2)	33 (5.3)
Postgraduate Certificate/Diploma	19 (10.6)	65 (14.6)		84 (41.2)	84 (13.4)
Masters	15 (8.3)	56 (12.6)		71 (34.8)	71 (11.3)
Doctorate (Other)	0 (0.0)	1 (0.2)		1 (0.5)	1 (0.2)
PhD	6 (3.3)	9 (2.0)		15 (7.4)	15 (2.4)
Domain of Study, n (%)					
Humanities/Education	69 (39.9)	235 (55.2)	227 (55.9)	77 (39.9)	304 (50.8)
Commerce	55 (31.8)	51 (12.0)	70 (17.2)	36 (18.7)	106 (17.7)
Science/Engineering	29 (16.8)	63 (14.8)	62 (15.3)	30 (15.5)	92 (15.4)
Health Sciences	11 (6.4)	54 (12.7)	35 (8.6)	30 (15.5)	65 (10.9)
Law	3 (1.7)	14 (3.3)	12 (3.0)	5 (2.6)	17 (2.8)
PhD	6 (3.5)	9 (2.1)	0 (0.0)	15 (7.8)	15 (2.4)
Other*	7 (3.9)	20 (4.5)	16 (3.8)	11 (5.4)	27 (4.3)

Living situation, n (%)[**]					
Parents/guardian	32 (17.8)	74 (16.6)	88 (20.9)	18 (8.9)	106 (16.9)
Shared house/apartment	84 (46.7)	153 (34.3)	185 (43.9)	52 (25.7)	237 (37.9)
Alone	5 (2.8)	22 (4.9)	16 (3.8)	11 (5.4)	27 (4.3)
Partner/children	59 (32.8)	194 (43.5)	132 (31.4)	121 (59.9)	253 (40.4)
Relationship status, n (%)[**]					
Single	71 (39.4)	156 (35.0)	177 (41.9)	50 (24.5)	227 (36.3)
Relationship not living together	35 (19.4)	82 (18.4)	89 (21.1)	28 (13.7)	117 (18.7)
De facto/Married/Civil union	66 (36.7)	190 (42.6)	143 (33.9)	113 (55.4)	256 (40.9)
Divorced/Separated/Widowed	6 (3.4)	15 (3.4)	10 (2.4)	11 (4.4)	21 (3.4)
Parent, n (%)	47 (26.1)	159 (35.7)	112 (26.5)	94 (46.1)	206 (32.9)
First member of immediate family to attend university, n (%)	89 (49.4)	214 (48.0)	204 (48.3)	99 (48.5)	303 (48.4)
Highest education level of highest educated parent, n (%)[**]					
No secondary school	4 (2.2)	15 (3.4)	9 (2.2)	10 (5.1)	19 (3.0)
Some/all secondary	48 (26.7)	132 (29.6)	115 (28.4)	65 (33.0)	180 (28.8)
Vocational Certificate	25 (13.9)	92 (20.6)	78 (19.3)	39 (19.8)	117 (18.7)
Undergraduate	52 (28.9)	116 (26.0)	123 (30.4)	45 (22.8)	168 (26.8)
Postgraduate	41 (22.8)	77 (17.3)	80 (19.8)	38 (19.3)	118 (18.8)

Employed, n (%)					
Full-time	57 (31.7)	99 (22.2)	52 (12.3)	104 (51.0)	156 (24.9)
Part-time	57 (31.7)	189 (42.4)	192 (45.5)	54 (26.5)	246 (39.3)
No	66 (36.7)	158 (35.4)	178 (42.2)	46 (22.5)	224 (35.8)
Te reo (Māori language) fluency					
No fluency	77 (42.8)	162 (36.3)	168 (39.8)	71 (34.8)	239 (38.2)
2	59 (32.8)	137 (30.7)	131 (31.0)	65 (31.9)	196 (31.3)
3	26 (14.4)	95 (21.3)	78 (18.5)	43 (21.1)	121 (19.3)
4	13 (7.2)	33 (7.4)	31 (7.3)	15 (7.4)	46 (7.3)
Very fluent	5 (2.8)	19 (4.3)	14 (3.3)	10 (4.9)	24 (3.8)
Long-term medical condition, n (%)	28 (15.6)	100 (22.4)	82 (19.4)	46 (22.5)	128 (20.4)

*Domain of study could not be determined (e.g. con-joint degrees)

**Missing data due to non-response

The participants' average age was 29 years and the majority studied full-time (63.3%), were intramural students (84.8%) and were employed while studying (64.2%). One third (32.9%) were parents and nearly half (48.4%) were first-generation students. One third reported no Te Reo fluency compared to four percent who were very fluent. The most common living situation was with a partner and/or children (40.4%) and the

most common relationship status was de facto, married or civil union (40.9%). Twenty percent had a long-term medical condition, impairment or

disability.

Gender differences

Compared to male participants, female participants were more likely to be parents ($\chi2$ (1, N=626) = 5.29, p=.01), study extramurally ($\chi2$ (1, N=626) = 5.27, p=.01), work part-time ($\chi2$ (1, N=626) = 8.41, p=.02), and have a long-term medical condition, impairment, or disability ($\chi2$ (1, N=626) = 3.72, p<.03). There were no significant gender differences found for EFTS status and being a first-generation student. There was also no significant difference in age between males and females based on an independent t-test.

Undergraduate and postgraduate status

Two thirds of participants were completing an undergraduate qualification, including 59 percent completing a bachelor's degree. One third of Māori participants (32.6%, n=204) were studying towards postgraduate qualifications and Māori students made up 5.8 percent[3] of postgraduate students in GLSNZ total sample. Of Māori students, 11 percent were completing a master's degree and less than three percent a PhD or doctorate degree (Table 1). Compared to Māori undergraduate students, Māori postgraduate students were significantly more likely parents, intramural students, employed and studying part-time when examined using $\chi2$ statistics and more likely to be older when examined using an independent t-test.

Domain of study

The most common domain of study was Humanities/Education (50.8%) followed by Commerce (17.7%), Science (15.4%), Health Sciences (10.9%), Law (2.8%), and PhD study (2.4%) (Table 1). The top three reasons given for choosing a topic or domain of study were
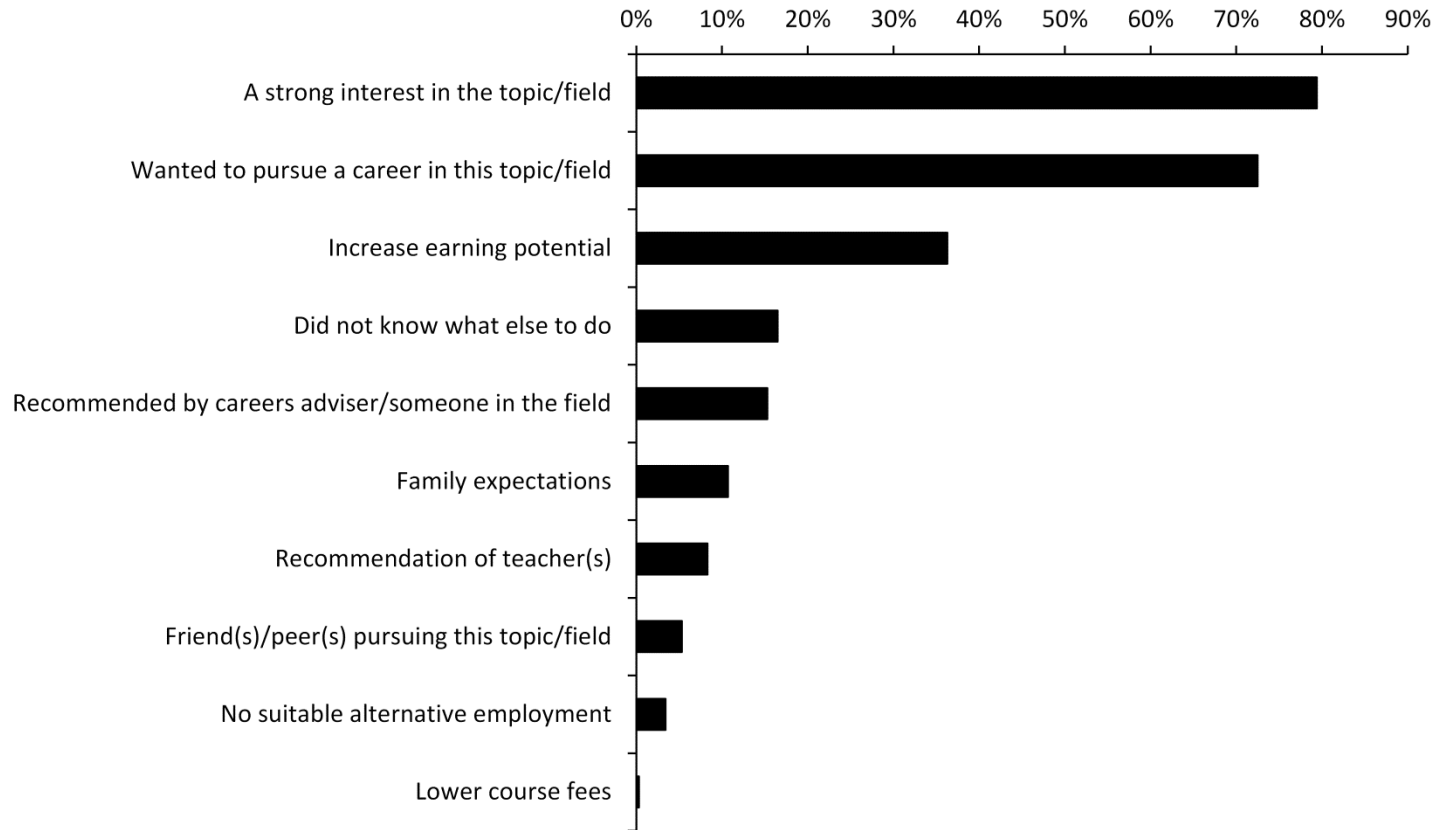
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[3] Weighted for oversampling of International PhD students and students from Lincoln University.

having a strong interest in the topic/field (79.4%), wanting to pursue a career in the

topic/field (72.5%) and to increase one's earning potential (36.3%) (Figure 1).

Figure 1

Reasons selected by participants for choosing their topic/field of study

Characteristics of the Māori sample based on domain of study

To examine the characteristics of the participants studying science/engineering, commerce, health sciences and humanities/education, we undertook a series of binary logistic regressions. Characteristics examined were; age, gender, EFTS status, mode of study, parenting, being a first-generation student, employment and having a long term medical condition. Due to small numbers, analyses were not undertaken for Law or PhD participants. In unadjusted analyses, older participants and students who were parents were less likely to be studying science/engineering. Once we controlled for covariates found to be significant in unadjusted analyses, we found that students who were parents compared to non-parents were less likely to be studying science/engineering (OR=0.28, 95% CI=0.12, 0.66), even after controlling for gender. Due to small numbers of Māori science/engineering students with two or more children (n=5), we were unable to properly test whether the number of children a participant had was associated with lower likelihood of studying science/engineering. We did, however, find a significant difference (p≤.001) between the groups (no children, one child, two or more children). In adjusted analyses, females (OR=0.28, 95% CI=0.18, 0.44) and students with a long-term medical condition (OR=0.52, 95% CI=0.28, 0.98) had lower odds of studying commerce compared to males and participants without a medical condition, respectively. However, students who were employed (either part- or full-time) had higher odds of studying commerce compared to students who were not. Females (OR=2.46, 95% CI=1.24, 4.89) and students who were not working (OR=4.17, 95% CI=1.98, 8.77) had significantly higher odds of studying health science compared to males and students in paid employment, respectively. Females, full-time students, parents and those who were not employed were significantly more likely to be studying humanities/education than were males, part-time students, students without children and participants working full-time.

Future plans and perceived benefits of a university education

In the next two years, the majority of participants reported wanting to pursue a career (75.1%), followed by pursuing further study (51.6%), a job (45.1%) and pursuing all three (career, job and further study) (22.0%) based on multiple responses. Most (89.1%) planned to work in in New Zealand. The areas/fields that participants plan to seek employment in are presented in Table 2.

Table 2

Areas/fields in which participants are seeking employment in the next two years

Area/Field	N (%)	Area/Field	N (%)	Area/Field	N (%)
Education & Training	177 (28.3)	Sport & recreation	38 (6.1)	Farming & agriculture	15 (2.4)
Health care & medical	109 (17.4)	Social work	37 (5.9)	Mining, resources & energy	15 (2.4)
Government	74 (11.8)	Banking & financial	35 (5.6)	Animal welfare	12 (1.9)
Academia	72 (11.5)	Hospitality & tourism	35 (5.6)	Call centre & customer services	10 (1.6)
Community Services/ development	67 (10.7)	Accounting	33 (5.3)	Defence	9 (1.4)

Science & technology	61 (9.7)	Retail & consumer products	31 (5.0)	Manufacturing	8 (1.3)
Marketing & communications	55 (8.8)	Legal	31 (5.0)	Trades & services	7 (1.1)
Arts	49 (7.8)	Human resources & recruitment	28 (4.5)	Construction	6 (1.0)
Environment & conservation	46 (7.3)	Design & architecture	27 (4.3)	Real estate & property	6 (1.0)
Consulting & strategy	42 (6.7)	Advertising	27 (4.3)	Insurance & superannuation	6 (1.0)
Administration & office support	40 (6.4)	IT & communication technology	24 (3.8)	Transport & logistics	4 (0.6)
Media	39 (6.2)	Sales	22 (3.5)	*Other*	*9 (1.4)*
Self-employment	38 (6.1)	Engineering	15 (2.4)		

Participants could provide multiple responses to this question, resulting in 1359 responses. The top three areas/fields were education and training (28.3%), health care and medical (17.4%) and government (11.8%). When asked about the benefits of a university education for the future, the top three benefits ranked to a *very high degree* were; personal development (43.8%), obtaining employment (34.8%), and being a role model (for education) within your own family or community (34.5%) (Table 3).

Table 3

Benefits of university education (all responses, left panel) and what participants are looking for in a career/job (top 15 responses, right panel)

In the future, a university education will be of benefit to a *very high degree*, for:	N (%)	What participants are looking for in a career/job	N (%)
Personal development	274 (43.8)	Job satisfaction	529 (84.5)
Obtaining employment	218 (34.8)	Financial security	446 (71.2)
Being a role model (for education) in own family or community	216 (34.5)	A good work/life balance	437 (69.8)
Career	211 (33.7)	Opportunity to apply knowledge & skills	436 (69.6)
Further study	189 (30.2)	Skill development	407 (65.0)
Geographic mobility	142 (22.7)	Opportunities for advancement	381 (60.9)
Performing work tasks	133 (21.2)	Opportunity to make a contribution/difference	381 (60.9)
Developing leadership skills	130 (20.8)	Opportunity to work with others	356 (56.9)
Community engagement	125 (20.0)	Intellectual challenge/stimulation	352 (56.2)
A good income	123 (19.6)	Earning potential	323 (51.6)
Developing a secure identity	117 (18.7)	Opportunity to contribute to Māori community	312 (49.8)

Job security	105 (16.8)	Flexibility	303 (48.4)
Acceptance by others	99 (15.8)	Location	289 (46.2)
Status/respect	96 (15.3)	Job security	270 (43.1)
Developing entrepreneurial skills	66 (10.5)	Culturally aware workplace	266 (42.5)

First-generation students were significantly more likely than other participants to report that a university education would enable them to be a role model for education within their families or communities (41.4% versus 28.2%, p≤.001). They were also more likely to report that a university education would benefit them in terms of their personal development (p=.007), developing entrepreneurial skills (p=.01) and developing a secure identity (p=.02).

The top three attributes that participants were looking for in a career were job satisfaction (84.5%), financial security (71.2%), and a good work/life balance (69.8%) (Table 3). Half of the participants (49.8%) were looking for opportunities to contribute to the Māori community and 61 percent for opportunities to make a contribution/difference.

Discussion

Māori university graduates reflect Māori potential, achievement and success. Despite historical policies and practices that resulted in the extensive exclusion of indigenous students from higher education, a transformation in Māori tertiary education has taken place and continues to do so. This transformation requires ongoing support and monitoring. It is hoped that this descriptive study will help inform universities and policy makers by providing a profile of contemporary indigenous university graduates in New Zealand.

We found that more Māori graduates were females than males. Previous research has also shown that Māori males are less likely to gain both tertiary and school qualifications compared to Māori females and non-Māori students, suggesting that disparities in educational participation begin early (Education Counts, 2010; Te Puni Kōkiri, 2010). Identified barriers to participation include lack of cultural responsiveness, difficulties transitioning from primary to secondary schooling and lower expectations of students (Controller and Auditor-General, 2012). There were also differences found in what (e.g. commerce) and how (e.g. full-time status) Māori males studied compared to Māori females.

Approximately half the participants were the first in their immediate family to attend university. Described as cultural pioneers, both national and international studies have found that first-generation students face a number of challenges in adapting to an alien tertiary environment (Nikora et al., 2002; O'Rourke, 2008) including lack of (i) access to role models who have attended and completed higher education, (ii) support in gathering information and (iii) help when making educational (e.g. subject) choices. First-generation students are also exemplars. In this study, 40 percent of first-generation students stated a university education would enable them to be educational role models for their families and communities. Moreover, half of all Māori were looking for opportunities in their future work to contribute

to the Māori community, and 61 percent for opportunities to make a contribution or difference.

We found that parents were less likely than non-parents to study science/engineering. Moreover, having more than one child may further reduce participation in science/engineering. This may be partly due to the time-intensive nature of coursework and study required for science and engineering degrees (National Survey of Student Engagement, 2012).

Do indigenous graduates differ from all graduates? Similar to previous findings for indigenous students both nationally and internationally, the proportion of Māori studying science/engineering (13.6%) was lower than that previously reported for all students studying science/engineering in the GLSNZ study (20.3%) (Tustin et al., 2012). The proportions of Māori participants who were first-generation students (48.4%) or who were parents (32.9%) were higher than the proportions for the total sample (36.9 and 21.0 percent, respectively). Moreover, these differences are likely to be conservative estimates as the previous findings for the total sample include Māori participants.

Overall, we found that Māori students were under-represented as university graduates (7.1%) considering Māori constitute 14.9 percent of the New Zealand population and are a younger population (median age of 23.9 years) compared to the overall population (median age of 38.0 years). Moreover, only 5.8 percent of postgraduates were Māori. More work is needed to reduce these disparities and boost Māori achievement - a current tertiary education priority (Ministry of Education and the Ministry of Business Innovation and Employment, 2014). A range of strategies likely to improve retention and completion include (i) more widespread use of indigenous teaching and learning practices (ii) increasing the numbers of indigenous staff who act as role models and mentors and (iii) financial support to ameliorate

the financial obstacles that many Māori students face (Airini et al., 2009; Mayeda, Keil, & Mills, 2012; Nikora et al., 2002). Given that Māori students are more likely to be parents, innovative ways to blend study with family and working life are needed including digital, group based, and mātauranga Māori learning. Adopting a whole of university approach to supporting indigenous success with adequate government support will further improve indigenous outcomes (Behrendt et al., 2012).

Our findings are in line with previous research showing continuing disparities in higher educational outcomes for indigenous students compared to non-indigenous students (Marks, 2007). Tertiary student populations worldwide are becoming more heterogeneous, but indigenous students remain under-represented. Current international challenges include a transition from an emphasis on quantity to a greater focus on quality and equity in tertiary education (Santiago, Trembley, Basri, & Arnal, 2008). A country's higher education system is a key determinant of its economic and social progress (Behrendt et al., 2012). Currently, the poverty gaps between indigenous and non-indigenous populations worldwide are stable or growing (Hall & Patrinos, 2010). Increasing indigenous university participation and completion will not only lessen disparities in educational outcomes but also reduce social and economic ethnic disparities (Behrendt et al., 2012; Ministry of Maori Development, 2000), with recent graduate studies showing the value of higher education for indigenous outcomes in terms of employment and earnings (Edwards & Coates, 2011).

In higher education, indigenous peoples worldwide continue to search for further legitimation of traditional knowledge and also useful application of contemporary knowledge in an increasingly globalised educational milieu (Durie, 2004). This includes moving beyond narrow curriculum discipline approaches that dominate academia in favour of the promotion of Māori specific knowledge and trans-disciplinary approaches for the benefit of Māori whānau (families) and communities. Māori graduate skills and expertise are a critical part of

this and will help to build and maintain positive Māori futures. Over the next 10 years, the GLSNZ will follow graduates and examine both the private (e.g. employment) and societal (e.g. community work) benefits of a university education.

There are a number of strengths and limitations in the present study. The GLSNZ is a large longitudinal study with sufficient numbers of Māori participants to allow for Māori-specific quantitative analyses which were led and conducted by Māori researchers. We did not, however, collect detailed information on participants' educational backgrounds (e.g. factors that had influenced their subject choice). Nor did we report on barriers (e.g. financial circumstances) and promoters (e.g. student support) of university completion. These will be the focus of future papers based on longitudinal data.

Conclusion

In spite of historical policies and practices to exclude Māori from higher education, the numbers of Māori university students graduating have increased dramatically over the past 30 to 40 years. These graduates are vital for transforming New Zealand society, reducing inequities between Māori and non-Māori, and they reflect Māori potential for success. Although the numbers of Māori graduates have increased, equity in tertiary education remains an ongoing issue. More needs to be done within universities, with the support of government, to address this, including increasing the numbers of Māori male graduates, Māori postgraduates and Māori science/engineering graduates. Our findings endorse ongoing efforts to support indigenous students, particularly first-generation students and parents. In terms of the future, contemporary Māori graduates are looking for employment in a range of professions and also for opportunities to contribute within their own communities and to make a difference within society. Future follow-up data will enable us to determine how these intentions are realised.

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Conflicts of Interest/Disclosure

The authors declare that they have no conflict of interest.

References

Adams, D. (1995). *Education for extinction: American Indians and the boarding school experience, 1875-1928*. Lawrence, Kansas: University of Kansas Press.

Airini, Brown, D., Curtis, E., Johnson, O., Luatua, F., O'Shea, M., Rakena, O., Reynolds, G., Saunit, P., Smith, A., Huirua, T.S., Tarawa, M., & Ulugia-Pua, M. (2009). Success for all: Improving Māori and Pasifika student success in degree-level studies *Milestone report 8*. Auckland: University of Auckland.

Barrington, J. (1993). 'Thornton, John', from the Dictionary of New Zealand Biography. *Te Ara - the encyclopedia of New Zealand.* Retrieved 5 May, 2014, from http://www.TeAra.govt.nz/en/biographies/2t42/thornton-john

Baum, S., & Payea, K. (2004). Education pays: The benefit of higher education for individuals and society. In College Board: Advisory and Policy Centre (Ed.), *Trends in higher education series*. New York: The College Board.

Behrendt, L., Larkin, S., Griew, R., & Kelly, P. (2012). Review of higher education access and outcomes for Aboriginal and Torres Strait Island People Final Report. Canberra: Australian Government.

Controller and Auditor-General. (2012). *Education for Māori: Context for our proposed audit work until 2017*. Wellington: New Zealand Government.

Durie, M. (2004). Understanding health and illness: Research at the interface between science and indigenous knowledges. *The International Journal of Epidemiology, 33*(5), 1138-1143.

Durie, M. (2009). *Towards social cohesion: The indigenisation of higher education in New Zealand*. Paper presented at the Vice-Chancellors' Forum 2009, Kuala Lumpur, Malaysia.

Education Counts. (2010). Participation and attainment of Māori students in National

      Certificate of Educational Achievement. Wellington: Ministry of Education.

Edwards, D., & Coates, H. (2011). Monitoring the pathways and outcomes of people from

      disadvantaged backgrounds and graduate groups. *Higher Education Research and*

      Development, 30(2), 151-163.

Gray, J., & Beresford, Q. (2008). A "formidable challenge': Australia's quest for equity in

      indigenous education. *Australian Journal of Education, 52*(197-223).

Hall, G., & Patrinos, H. (2010). Indigenous peoples, poverty and development. Washington:

      World Bank.

Harris, A. (2004). *Hikoi: Forty years of Māori protest*. Wellington: Huia Publishers.

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

Hunn, J. K. (1961). *Report on Department of Maori Affairs*. Wellington: Government Printer.

Jefferies, R. (1997). Maori participation in tertiary education: Barriers and strategies to

      overcome them Wellington: Te Puni Kōkiri.

Li, I. (2013). Labour market outcomes of indigenous university graduates in Australia. In T.

      Griffin (Ed.), *2013 postgraduate research papers: a compendium* (pp. 8-28).

      Adelaide: NCVER.

Marks, G. (2007). Completing university: Characteristics and outcomes of completing and

      non completing students. LSAY Research Reports. Longitudinal surveys of

      Australian youth research report. Victoria: The Australian Council of Educational

      Research.

Mayeda, D. T., Keil, M., & Mills, A. (2012). Māori and Pacific Island students at the

      University of Auckland: Current trends and suggestions for improving retention

      Technical Report. Department of Sociology: University of Auckland.

Mead, H. (2003). *Tikanga Māori: Living by Māori values*. Wellington: Huia Publishers.

Ministry of Education. (2013a). Ka Hikitia: Accelerating success 2013-2017. The Māori

      Education Strategy. Wellington: Ministry of Education.

Ministry of Education. (2013b). Profile and trends: New Zealand's tertiary education sector

      2012. Wellington: Ministry of Education.

Ministry of Education and the Ministry of Business Innovation and Employment. (2014).

      Tertiary Education Strategy 2014-2019. Wellington: New Zealand Government.

Ministry of Maori Development. (2000). Progress towards closing social and economic gaps

      between Māori and non-Māori: a report to the Minister of Māori Affairs. Wellington:

      Ministry of Maori Development.

National Survey of Student Engagement. (2012). Promoting student learning and institutional

      improvement: Lessons from NSSE at 13 annual results 2012. Bloomington: Indiana

      University Center for Postsecondary Research.

New Zealand Government. (1916). Education of Maori children: Appendix to the Journal of

      the House of Representatives. Wellington: New Zealand Government.

Nikora, L. W., Levy, M., Henry, J., & Whangapirita, L. (2002). An evaluation of Te Rau

      Puawai. Workforce 100: Addressing the recruitment and retention of Maori students

      in tertiary education institutions: A literature review. Hamilton: Universty of Waikato.

Norris, E. (2001). Australian indigenous employment disadvantage: What, why and where to

      from here? *Journal of Economic and Social Policy, 5*(2), Article 2.

O'Rourke, V. (2008). *Invisible fences: Perceived institutional barriers to success for*

      indigenous university students. Paper presented at the AARE Annual Conference,

      Brisbane, Australia.

Openshaw, R., Lee, G., & Lee, H. (1993). *Challenging the myth: Rethinking New Zealand's*

      educational history. Palmerston North: The Dunmore Press.

Pihama, L., Smith, K., Taki, M., & Lee, J. (2004). A literature review on Kaupapa Māori and Māori education pedagogy. Auckland University: The International Research Institute for Maori and Indigenous Education.

Reid, J. (2006). *Barriers to Māori student success at the University of Canterbury.* (Masters of Arts), University of Canterbury, Christchurch.

Robson, B., & Reid, P. (2001). Ethnicity matters: Māori perspectives. Wellington: Te Rōpū Rangahau Hauora a Eru Pōmare for Statistics New Zealand.

Santiago, P., Trembley, K., Basri, E., & Arnal, E. (2008). Tertiary education for the knowledge society (Volume 1: Special Features: Governance, funding, quality): OECD.

Simon, J. A. (1992). *State schooling for Maori: The control of access to knowledge*. Paper presented at the Joint AARE/NZARE conference, Geelong, Australia.

Smith, A. (2009). Indigenous Peoples and Boarding Schools: A Comparative Study. Prepared for the United Nations Permanent Forum on Indigenous Issues. New York: United Nations.

Te Puni Kōkiri. (2010). *Ngāi Māori me nga hua o te matauranga: Benefits of education for Maori* Wellington: Education Counts Publication

Te Puni Kōkiri. (2012a). Ko nga rangatahi Māori i te rāngai matauranga me te whiwhi mahi: Māori youth in education and employment. Wellington: Te Puni Kōkiri, Ministry of Māori Development.

Te Puni Kōkiri. (2012b). He kai kei aku ringa: The Crown-Māori economic growth partnership *Action plan 2012-2017. Māori Economic Development Panel*. Wellington.

The Association of Universities and Colleges of Canada. (2011). Trends in higher education: Volume 1 - Enrolment. Ottawa: The Association of Universities and Colleges of Canada.

Topitzes, J., Godes, O., Mersky, J. P., Ceglarek, S., & Reynolds, A. J. (2009). Educational
      success and adult health: Findings from the Chicago Longitudinal Study. *Preventive*
      Science, 10, 175-195.

Tustin, K., Chee, K.-S., Taylor, N., Gollop, M., Taumoepeau, M., Hunter, J., Harold, G., &
      Poulton, R. (2012). Extended baseline report: Graduate Longitudinal Study New
      Zealand. Dunedin: University of Otago.

van der Meer, J., Scott, S., & Neha, T. (2010). Retention of first-year Māori students at
      university. *MAI Review, 2*, 14.

Waitangi Tribunal. (1999). The Wananga Capital Establishment Report: WAI 718. Waitangi
      Tribunal Report. Wellington, New Zealand.

Ward, A. (1974). *A show of justice: Racial 'amalgamation' in nineteenth century New*
      Zealand. Auckland: Auckland University Press/Oxford University Press.

Wensvoort, M. (2013). Tertiary education enrolments 2012. Wellington: Ministry of
      Education.