

Tertiary Teaching Excellence Awards

2011



Nomination for

Professor Michael Walker

**School of Biological Sciences
The University of Auckland**

Kaupapa Māori category

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Te whenua, Te tangata, Te aronui, Te māramatanga

Values

Seeing the thrill of learning light up the faces of the people I teach is a great privilege and an even greater pleasure. Learning something new, whether it is mastering a new skill, understanding something you previously couldn't, or discovering something completely new to the world is exciting, independent of grades and financial or other rewards. People who experience successful learning come to love what they do because of the enjoyment it brings. People who love what they do will contribute greatly to their families, the places they work, and to their wider communities.

The logical consequence of the above is that we as tertiary educators must value:

Our people:	especially our young people;
Our potential:	to educate and grow our nation;
Our (Pacific) place:	which nurtures us and feeds us; and
Our identity:	as a society where two intellectual traditions are joined by treaty.

The context and content of education

Education transmits not only knowledge but also the culture and values within which that knowledge is applied. A mismatch between the cultures and values of students and those of their teachers makes it difficult both for teachers to teach and students to learn. That is, we must understand not only the content (knowledge and understanding) but also the context (culture and values) to be acquired by students.

When I joined the University's academic staff as a post-doctoral researcher in 1990, I could see an opportunity to contribute through teaching to students during their lives and careers after graduation, to the future of research in New Zealand, and to the goals of the University. The University was rated highly around the world but faced challenges meeting its responsibilities to Māori under the Treaty of Waitangi. In particular, there apparently were no more Māori (and Pacific Island; MPI) students taking upper level undergraduate papers than when I had been a student despite the number of students at the University trebling in the interim.

What was required was to overcome the differences between the contexts and content of education for both MPI students and the wider student body. Over time, issues of difference between context and process also became evident in research organisations, where I served in a mix of executive and governance roles. The understanding derived from my early teaching contexts enabled me to contribute to successful outcomes for the research organisations and the Māori communities with whom they worked.

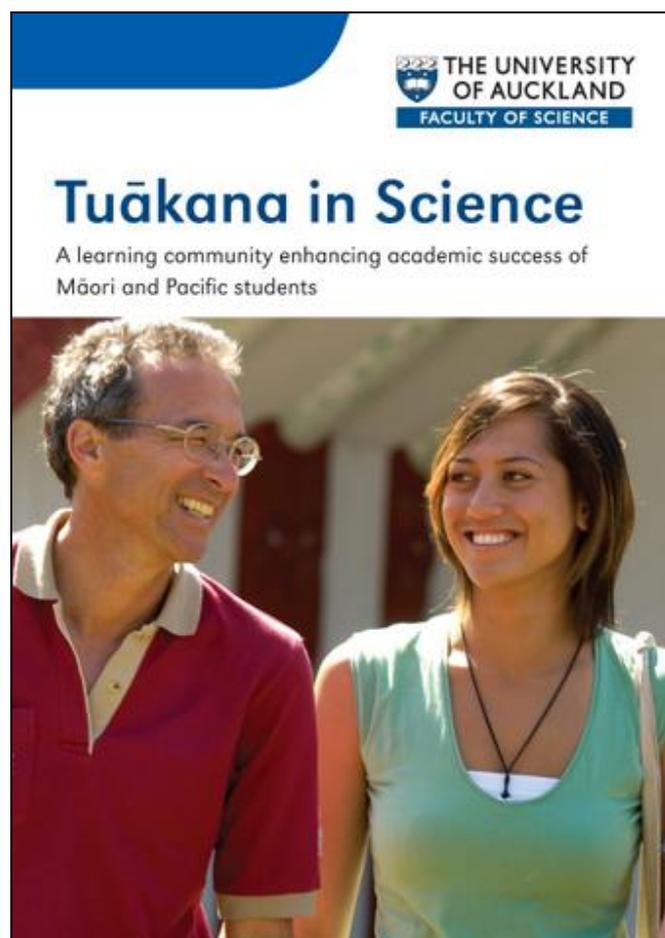
Retention of MPI students

The context of education for MPI students enrolling in biology at the University is that these students are mostly:

- the only student enrolling in science from a low-decile school where the ability to teach science at senior levels is limited
- a small minority in very large first-year classes.

MPI students also often come as the first member of their family to enrol in university study where they experience far greater social isolation initially than the bulk of other school leavers. As a consequence they have been lost to the School of Biological Science (SBS) and the University in far greater numbers than is desirable.

The first-year teaching coordinator had long been concerned about the low retention of MPI students and asked if I might be able to help. My gut feeling at the time was that the students were likely to be clever because they were the best students from their schools and were struggling academically because of the social context rather than lack of ability or preparation. All that was required was to provide the conditions for the students to demonstrate their abilities.



The outcome of our discussion was the Tuākana Programme (TP) which greatly reduces the attrition rate of MPI in the first year of university study. The TP was so named because the strategy for the intervention was to take advantage of the concepts of tuakana and teina (elder and younger sibling) in Māori society. Briefly, the tuakana (plural tuākana) has a responsibility for ensuring the success of the teina, the teina has a responsibility to learn from the tuakana, and both have a responsibility to contribute to the success of the wider group.

Based on my gut feeling, the approach in the TP from the outset was explicitly mana enhancing (enabling not remedial). The TP works to ensure new MPI students (teina) make

friends quickly and feel they belong in the university community, and provides peer tutoring in a supportive academic environment in which the teina focus on understanding what they are being taught.

Teina students are expected to come to the tutorials with questions relating to their understanding of the readings and lectures and are discouraged from asking how to answer particular exam questions. Tuākana students are expected to prepare thoroughly to teach the material so that the teina students understand the content they are being taught through lectures and laboratories. This requires the tuākana students to think about **how** they teach as well as **what** they teach.

The TP delivered its first tutorials early in the academic year of 1991 and the impact was immediate. We obtained clear evidence from the first test that TP was making a difference and performance by the students has continued to improve ever since. The key outcome of the TP has been the **retention** of MPI students beyond Stage I and their progression on to graduation and employment. The TP has grown to support six first-year courses taught in SBS and has replicated the effects described above each time it was established in a new paper.

More important, however, has been the role of the students themselves. I was identified as the founder of the TP in SBS but recognised in the second year that I was actually holding the tuākana students back in their teaching because they deferred to me. The tuākana thus were missing out on the academic benefit of better understanding of content and the pleasure that come with successful teaching.

My response was to teach only when asked by the tuākana and otherwise to deal with administrative or pastoral care issues. My role progressively evolved from coordination to programme management and being an academic champion for the students and the tuākana began to work with the cultural capital brought by the teina students in ways that I could not have dreamed of. Highlights of these initiatives were the ‘ice breakers’ and ‘singing tutorials’ that made the tutorials fun. The outcome was that pass rates and grade point averages for teina students participating in the TP are now largely indistinguishable from the whole cohort for our papers where the TP is well established.

...the Programme has been run by different Student Co-ordinators, using different styles, methods and techniques, my own included. It has always, however, been run under the guiding principles of valuing whānau, hapū and iwi, with ongoing support, vision, strategy and hard work from Prof. Michael Walker. ...It is hard to measure the impact of such support, of knowing that you are valued when the sheer volume of other students makes you feel otherwise.

Former Tuākana student

My role as an academic champion for the TP applied my understanding of the needs of both the discipline and of MPI students to help ensure the work would be most effective for biology as a discipline and, more recently, the sciences in general. In particular, it is important for all students to appreciate that enhanced performance by MPI students benefits everyone by continuously raising standards and enhancing the value of the degrees obtained by all students.

When I first came to University I was not prepared for the culture shock - of being just a number, of the relentless labs and tests, of the lure of extra-curricular activities. I credit the Tuākana programme for the successful completion of my Bachelors degree... Although a key component, it wasn't just the academic support that I found the most beneficial - it was the sense of whānau, of belonging that came from being involved in the Tuākana programme. Furthermore, it afforded the unique opportunity to be both teina and tuakana at the same time, and the incredible sense of understanding that that brings, that I credit with providing the strong base from which I launched my postgraduate career.

Former Tuākana student, SBS Tuākana website

My sister and I were the first in our family to even look at tertiary education, and I was the first to attend university; all of our first cousins are now undertaking tertiary education, which for me is an exceptional outcome for all of the family and our community. For me, this shift epitomises the vision and goals of Prof. Walker and of Tuākana, of using success to breed success.

Former Tuākana student

The initial success of the TP was quickly followed by unsolicited comments from the Stage I teaching team that MPI students were much more engaged with their studies than previously and, over time, developed into unsolicited offers of resources beginning with a room located in the central undergraduate student area set up for individual and group work with workstations and computers. The TP itself has been taken up across the University and is now recognised as an established part of core teaching business by the Faculty of Science.

Participation in this University-wide programme continues to grow. Overall, 75% of all Māori and Pacific undergraduate students (3,000 students in total) participated in a Tuākana programme in 2009.

Positive outcomes for MPI students include:

- * An increase in the retention of Māori students (from 69% in 2001 to 79% in 2009).*
- * An increase in the proportion of Māori students enrolled in postgraduate studies (from 15% in 2005 to nearly 18% in 2009).*
- * An increase in the Student Pass Rate of new Stage One Māori students (from 73% to 79%) and Pacific students (from 64% to 69%) between 2005 and 2009. This compares with a 2% increase in the pass rates for all Stage One students over the same period.*
- * A decrease in the numbers of Māori (2.5 per cent) and Pacific students (3.2 per cent) who did not complete or sit their courses between 2001 and 2008 (down by 2.5% and 3.2%, respectively). By comparison, the decrease was 0.4 per cent for all students, over the same period.*

These results are dramatic. While they reflect the work of many throughout the University over a number of years, the concept was Michael's. His contribution continues to be generous.

Trudie McNaughton, Pro Vice-Chancellor (Equity)

I also became a beneficiary of the TP as its success in 1991 gave me a point of difference that encouraged Professor Dick Bellamy to offer me a temporary teaching position. I started teaching in a new Stage 1 paper in early 1992 (see below) and went on to develop the TP further, began teaching at advanced levels, and was appointed Assistant Dean for MPI students in 1994.

Finally, the data I had kept on the performance of students in the TP contributed to a successful Partnership for Excellence proposal by Dame Professor Anne Salmond. The Starpath project has now moved from research to implementation and, for me as a member of the project's Board, it has been a pleasure to see the outcomes of the research now starting to be widely implemented.

Progression of MPI students to employment and postgraduate study

We have now developed an academic launch-pad for our advancing MPI students. Since 2001, Dr Shane Wright and I have identified MPI students for summer studentships in biology, in which promising students are given exposure to a research experience. From my ongoing records, I nominated the students for the awards based on their academic performance and an assessment of their potential as future leaders in their careers and communities.

This was followed in 2009 by Pūkenga Pūtaiao (PP), a day-long academic and professional skills workshop for upper level undergraduate and early postgraduate students that we felt would grow the discipline of biology as a whole. The goal of PP is to place our MPI students on an academic and professional launch-pad to highly successful careers and postgraduate study and, after being run twice by SBS, is to be delivered in 2011 for all science Schools and Departments by the Faculty of Science.

Comments from academic staff who participated have been that the mock interviews contributed greatly to the willingness of the students to engage with the academic staff both in their classes and when visiting their offices.

Overall comments:

I found pūkenga Pūtaiao 2011 to be informative about academic skills and about career information. It has helped to improve and maximise study times by how to read articles and how to work with others. The program also gives great information on how to increase your chance of being hired when graduating after uni. Overall I think this was a successful program.

Student feedback, Pūkenga Pūtaiao, 2011

Confirmed results of PP are increased motivation of MPI students to pursue higher level studies combined with greater understanding of the professional environment into which they are advancing. The combination of targeted opportunities for summer studentships and PP has resulted in the number of MPI students entering postgraduate studies in SBS for the first time trebling since 2004.



To find that Māori are now doing advanced degrees in so many areas of the sciences is very uplifting and exciting. The whole world knows that in order to progress in these uncertain times that our young people must be well versed in every aspect of science. Professor Walker has developed the template for all Indigenous people to engage with universities everywhere; if Māori can do it then so can we all.

Professor Lilikalā Kame'eleihiwa, University of Hawai'i at Mānoa, 2011

Recruitment of MPI students into the University

From 2000-2007, I led the Tuākana in Schools programme, a collaboration with two schools that committed themselves to improving educational outcomes for their students. First year students who participated as teina in the TP, understood its culture, and who had a successful first semester were recruited to work as tuākana in collaboration with Tangaroa and Tamaki Colleges in South Auckland.

The tuākana acted as tutors and mentors in science departments and showed that MPI students could not only study successfully at university but also could see bright futures for

themselves and the students following behind them. Appointing students who lived within the communities enabled the students to be role models by being visible in the schools, at church, on the sports fields, and in the malls.

The outcome of the Tuākana in Schools Programme was that the numbers of students enrolling in the University from both schools rapidly increased, from less than one student per year throughout the late 1980s and 1990s to well over ten enrolments per year when the funding support ended in 2007.

I have a vivid memory of engagement with students from one of the schools. Visiting the school with SBS staff we found ourselves in a room full of Year 10 students. The room turned out to be a physics teaching room and so I gave the students an impromptu lesson on force using the formula $\frac{1}{2}mv^2$, and the dangers of being tackled by Jonah Lomu as opposed to a middle-aged academic. I then identified Māori and Pacific Islanders in the All Blacks and Silver Ferns who had degrees and, as a consequence of their education, would continue to play leading roles in their communities long after they retired from sport.

Mike... has shown a high level of commitment as well as an in-depth understanding of the challenges involved in promoting and engaging these students and their families. ... The Tuākana Programme provided a 'face' that our students could relate to and a connection with someone who was achieving academically at a university. The response from our students was very positive and some of our Teina returned back ... as Tuākana themselves. This mentoring model, using tertiary students, has now been adopted by other institutions in many secondary schools.

HoD Science, (secondary school) 2011

MPI students in the Faculty of Science

In 2009, the new Dean of Science asked me to take a lead role in assisting the Faculty to improve the outcomes for MPI students. I proposed that the Faculty of Science:

- ensure Tuākana programmes focus on making new MPI students feel welcome at university and quickly focus on their academic studies;
- ensure the academic design of the Tuākana programme is appropriate to the way the disciplines are taught; and
- actively monitor MPI student performance to ensure the programmes improve their performance continuously.

The Faculty appointed a Kaiarahi to provide Faculty-level coordination and oversight of MPI student initiatives. Four mathematics-intensive disciplines then agreed without debate to collaborate on ensuring MPI students achieved greater success within their disciplines. Beneficiaries of this initiative can be expected to include the MPI students, the Departments as MPI succeed and persevere, and the University as a whole.

Introducing Māori perspectives into undergraduate biology teaching

The incorporation of the Treaty of Waitangi into law and policies of national and local governments has implications for graduates in biological sciences when they enter employment in areas relating to environments and resources. My first formal assignment was to provide such teaching for a large first year class BIOSCI 104 - New Zealand Ecology and

Conservation, and was one I found very challenging. Over time, however, I have learned how to set the context in a way that enables both Māori and non-Māori students to engage with the content being taught by working with the knowledge that students bring with them to the University.

The key is to be explicit about both the context (the future lives in employment and the wider societal environment of the students after they graduate) and the content to be taught that will enable them to learn from their ongoing experiences. My stated goals for students are to:

1. recognise that the wider context of their education must be addressed to establish a common platform from which all the students can analyse environmental issues in New Zealand;
2. develop a comparative approach to analysis of environmental and resource issues in New Zealand as viewed by Māori and non-Māori;
3. provide basic information about cross-cultural issues to build knowledge and skills relevant to current issues in ecology and conservation in New Zealand; and
4. encourage students to take advantage of the learning opportunities in this area provided by the University.



I then demonstrate the value of the common platform by showing that there are powerful ecological **similarities** between the colonisations of New Zealand by Māori and predominantly English-speaking people from Britain. The ecological similarities provide a

common platform for teaching that covers the ecology of the two major human colonisations. As a consequence, constructive discussion of the way forward for management of our environments and resources can readily occur.

Throughout his career Professor Walker has also been dedicated to bringing Māori worldviews and perspectives, tikanga, and te reo, into both his research and his teaching. Conversely, he brings the non-Māori students in his classes into the world of the Māori, and establishes a conversation between descendants of the two cultures, with a view as to how knowledge from the two cultural contexts can contribute to the welfare of all of Aotearoa. His research draws on the knowledge of both his ancestors and mine to grant him insights into animal navigation and the lunar rhythm that are not available to others. Now, not only do Māori students feel the culture and wisdom of their ancestors are being venerated in the western university setting, but also that they have equally brilliant insights to develop and share.

Professor Lilikalā Kame'eleihiwa, University of Hawai'i at Mānoa, 2011

Teaching and curriculum design

I have taught at all levels and been involved in curriculum design within the School as follows:

Teaching in course	Curriculum design contribution
BIOSCI 103: Comparative Animal Biology	Teaching team member
BIOSCI 104: New Zealand Ecology and Conservation	Māori perspectives component
BIOSCI 207: Animal Function and Design	Teaching team member
BIOSCI 336: Biological Clocks and Compasses	Co-founder of the paper
BIOSCI 337: Animal Behaviour	Co-founder of the paper (ex BIOSCI 336)
BIOSCI 395: Pacific Biogeography	Teaching team member
BIOSCI 723: Advanced Animal Behaviour	Co-founder of the paper
BIOSCI 728: Neuroethology	Co-founder of the paper (ex BIOSCI 723)

Student interaction

I have invested considerable effort in making explicit to students the development of the knowledge and skills required at upper undergraduate and postgraduate levels. From my first Stage I lecture, I work to encourage the students to respond to questions so that I know I am communicating effectively. I tell the students that there is no such thing as a dumb question, only dumb explanation, and there is always someone who will be grateful to have the question asked. When marking examination essays, I examine how the students have interpreted the questions, in case any have failed to be clear. This process provides important information about how effectively I have taught the material and where I can improve the teaching in future.

I was able to observe him over the years on numerous occasions as a teacher. What I remember most was his continued drive to become the best teacher he could be, which he inspired me to aim for in my own teaching. ...Mike always made every effort to not

only teach students the facts, but also how to use these facts to answer new questions and, even more importantly so, to think of new questions to ask.

Former PhD student

In teaching advancing undergraduates, I routinely challenge students to think actively during lectures through interactive questioning and thought exercises that require the students to use logic and/or mathematical approaches to biological problems constructed for them in lectures. My third-year field exercise in pigeon navigation is a problem that has no ‘right’ answer that can be easily written up in a scientific report. Typically 25-30% of the students accept the challenge of looking for ways to explore the data over and above the standard techniques provided to them. Those who take the risk of trying something different are spread across the spectrum of ability, usually find something they weren’t expecting, and gain a premium for their effort.

At postgraduate level, students must learn to deconstruct the work of others and design a research study. I provide the students with an outline process for deconstructing a piece of research and then ask them to write a short critical analysis of a pair of published papers each week. I then focus on progressive development of the students’ analytical skills over the semester while advancing the focus of the assessment of the critical analyses through the levels of work within the process sheet. I was subsequently approached by a colleague who had found one of her students using the outline process to do her assignments and asked if I would permit her to make it available to all her students.

....Mike... would continually challenge me to develop my problem solving and critical thinking skills. I remember most him telling me “Go away and think about it” rather than providing me with a quick answer to my question. ... I also thoroughly appreciated his open door policy, being always there for you to help in any way to facilitate your progress as a student.

Former PhD student

All the great work that Professor Walker has accomplished during his career could not have occurred had he not had excellent skills in the areas of Manaakitanga, or Concern for colleagues and learners and of Kotahitanga, or Collaboration. He has mastered each of the categories of Manaakitanga; he has a high level of concern for and commitment to learners, both Tangata Māori and Tangata Tiriti, and his teaching environment is empowering to all.

Professor Lilikalā Kame'eleihiwa, University of Hawai'i at Mānoa, 2011



Photo: S. Greif

Student evaluations

Course and lecturer evaluations are undertaken regularly by the University and I have requested extra evaluation when establishing a new paper. The Māori Perspective teaching in BIOSCI 104 is the paper where the development of my teaching over time is most obviously reflected in the numerical evaluations by students. The steady increase in approval ratings in this paper reflects the progressive development of the shared context from which the students are able to engage with the material taught.

Unsolicited comments from students taking this paper give confidence that a wide range of students quickly become comfortable with the treatment of context and comment, that they ‘get the point’ and learn more as a consequence.

Question: Overall, I was satisfied with the quality of this course.

Course name	Course code	Enrolments	Year	Mean (out of 5)*
Neuroethology	BIOSCI 728	8	2009	4.50
New Zealand Ecology and Conservation	BIOSCI 104/G	292	2009	4.16
Animal Behaviour	BIOSCI 337	39	2008	4.00
Adaptive Design	BIOSCI 207	138	2008	3.68
New Zealand Ecology and Conservation	BIOSCI 104	257	2006	3.81
Neuroethology	BIOSCI 728	13	2006	4.20

Question: Overall, the lecturer was an effective teacher

Course name	Course code	Enrolments	Year	Mean (out of 5)*
New Zealand Ecology and Conservation	BIOSCI 104	263	2008	3.92

Research – the potential of the Māori intellectual tradition

When I began PhD study at the University of Hawai'i, I found a different academic culture and struggled to identify a topic for my PhD research. I ended up reviewing everything I had done up to that point in my life and identified the issue of animal navigation, which had defied scientific explanation for many decades. Having identified a clear research problem, I recognised that I was a young Māori who had grown up in and on the Pacific and read about the two methods of oceanic navigation developed by humans in the Pacific and North Atlantic Oceans.

Research on animal navigation seemed to be an opportunity where I should have an intellectual edge even though I could not define what that 'edge' might be. As time went on, my work continued to advance where others with far greater skill and experience in relevant disciplines than I had seemed unable to make progress. I eventually concluded that the 'edge' was a level of intellectual flexibility as a Māori in being able to look at animal navigation knowing that there are two completely different ways that the navigation problem had been solved by humans and that natural selection could well have found another way that humans had not yet thought of.

The logical consequence of the idea that my Māori identity was contributing to my success was that it should be reproducible in some other domain where I might be able to make a contribution. A serendipitous discussion of the Māori fishing calendar and its efficacy over two successive family fishing trips led me to ask myself why a fish might be vulnerable to capture at certain times of the month than at others. The answer was that variation of appetite over the lunar cycle may explain a lunar rhythm in fish capture. The work we have been doing on the lunar rhythm is ongoing and, while I am confident the Māori fishing calendar has given us an insight into the lunar rhythm in marine animals, new experimental and analytical methods have to be developed to enable rigorous demonstration of that insight.

Accepting that the bicultural experiences in my life have granted me insights not available to my research colleagues implies that the Māori intellectual tradition is important to the future of New Zealand science. Young Māori who are bicultural and/or bilingual are critical to the future contribution of the Māori intellectual tradition in New Zealand science. Over time, participation by Māori (and Pacific Island) students in the sciences is an exciting opportunity for the nation as it will enable us to benefit from a more diverse pool of ideas.

Contexts for professional practice – research organisations

Understanding the context of teaching has permitted me to understand better contexts where Māori and non-Māori are largely distributed on opposite sides of the research process. As a Board member of two Crown Research Institutes and Project Starpath, I learned that the establishment of respectful relationships is critical in enabling research organisations and Māori to work together effectively.

As Joint Director of Ngā Pae o te Māramatanga (NPM), I found development of respectful relationships with the University's administration, rather than with researchers, played a vital role in the Centre's success. Deliberate building of relationships with key partners across the cultural boundaries contributed to the success of all these organisations in their different roles and depended critically on the goodwill and patience of the individuals involved. As with my teaching, I feel the effort invested in clarifying context and process while establishing good relationships among people and their organisations permits a more expansive vision for the future and enhances the effectiveness of these research organisations in our society.

Closing comment

For me, teaching is second only to parenting for the positive contribution I can make to other people's lives. It has enabled me to make significant differences in the lives of both MPI students and their cohorts, as well as positively affecting other people's lives at a distance through my work with research organisations. My first-year teaching requires me to persuade a large and diverse class of students in their first week at university of the value of establishing a novel context in which to teach scientific content. If my first-year teaching enables students to work more effectively in New Zealand society after they graduate, I will have made a contribution to the nation's development that is beyond any individual achievement I might make in research. If my teaching sharpens the minds of advancing undergraduate and postgraduate students, they will go on to make significant contributions to our society and economy. Successful teaching also benefits my research because teaching effectively demands that complex concepts be communicated simply and clearly, a key skill in research.

Finally, I have formed lasting relationships with students from all walks of life who have repeatedly surprised me with their ongoing interest in what I do and, in the case of TP graduates, have always been willing to help out and share their stories (<http://www.sbs.auckland.ac.nz/uoa/home/for/Māori-and-pacific-island-students>) even after 20 years.

Prof. Walker is a role model to all our students, particularly to our Māori and Pasifika students, constantly pushing them to seek information and knowledge, to step up and to widen their horizons, but in such a way as to be supportive of where they currently are and to where they are aiming to go; truly, he is a mentor to look up to. As with every great leader, he is often not the person whose name is up in lights, but rather the one constantly working behind the scenes, working towards the achievement of others, quietly yet solidly promoting a legacy of leadership and success.

Former Tuākana student

Ka rangaranga te muri ka tūtū ngā tūātara o te tāmure. Ko te tangata nāna i noho te whakarua, ko au! ko au! Ko Tūtāmure!