2021 **Tertiary Teaching Excellence Awards**
General category

Nomination for Dr Brendon Dunphy

School of Biological Sciences
The University of Auckland

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Introduction

I love teaching. I find it exhilarating, demanding, and deeply rewarding. I see it as my 'mission' as an academic to guide students to have the confidence to question, innovate, and ultimately improve the human condition. It is wonderful to see students' faces change from uncertainty to pride when they come to grips with a concept or some tricky content.

I was extremely fortunate to grow up by the ocean. My earliest memory is being lulled to sleep by the waves, and my playground was the beach so studying marine biology felt like a natural progression to me. However, my journey to tertiary teaching was perhaps not typical. Success did not come easily to me as a student but as I progressed in my degrees, and the material became more interesting, I improved significantly. I find this experience useful to draw on since it allows me to empathise with struggling students and help them succeed by pointing out that it's OK not to be perfect, it's OK to fall over. There's space in the system for people to master their craft and incrementally improve, not everyone is born an A+.

Being pākeha but immersed in Te Ao Māori has shaped me as teacher. My wife (*Taranaki* iwi) and I sent our two beautiful daughters to Te Kura Kaupapa Māori o Ngā Maungarongo for their education. This exposed me to a whole new way of learning, a different way of 'knowing'. When my daughters arrived at kura, the only Te Reo I knew was "Kia ora", and it took me many, many months to feel confident to even speak to their teachers. I got an insight in what it is like to be way outside your comfort zone, and how difficult it can be for our University students to risk asking questions when they feel overwhelmed and out of their depth.

The kura also showed me, first-hand, a different teaching philosophy in practice, i.e. *Te Aho Matua*. I was particularly impressed by the explicit catering to all facets of a student's learning (mind, body, spirit) and the respect for students that was embedded within the curriculum.

My experiences at kura prompted me to reflect on the parallel challenges that students may face when entering university – for many, including those who are first-in family, the culture of the University and of scientific disciplines is unfamiliar. They also initiated my growing frustration with the barriers for Māori entering University/sciences, and a desire to show University as a viable option for our Māori rangatahi. I believe everybody is a scientist - unlocking this capacity is crucial.

Teaching philosophy

In developing my teaching, I apply an active learning approach as much as possible. There is a considerable body of scholarly evidence that shows that active learning results in greater engagement and factual recall than passive activities such as lectures[1]. Active-learning has its roots in 'constructivism', which posits that learners must construct their own understanding of new knowledge from experience and instruction, on a foundation of prior knowledge[2]. Guided by the writings of John Biggs[3] and Edgar Dales "Cone of learning"[4] I develop learning resources that allow the students to actively participate in an activity rather than engage passively with the material.

[1] Wood WB (2009) Innovations in teaching undergraduate biology and why we need them. Annual Review of Cellular and Developmental Biology 25:93-112.

[2] Armbruster P, Patel M, Johnson E, Weiss MJCLSE (2009) Active learning and student-centered pedagogy improve student attitudes and performance in introductory biology. CBE—Life Sciences Education 8:203-213.

[3] Biggs, J (1999): Teaching for Quality Learning at University: What the student does,. Society for Research into Higher Education: Open University Press, Berkshire

[4] Dale E (1969) Audiovisual methods in teaching. 3rd edition, The Dryden Press; Holt, Rinehart and Winston. New York, NY, USA

An example of this is a scenario-based laboratory session where students act as Ministry of Primary Industries Biosecurity officers. Here students use their knowledge of animal morphology to compare the characters of a variety of New Zealand crab species and identify an invasive crab species (Asian paddle crab, *Charybdis japonica*). For me this achieves two goals: students not only get to apply their knowledge but also experience what their future employment might look like.

Active learning works best when the student/staff relationship is well established and based on trust; then students are more willing to go where the teacher wants to take them. The first encounter with a class is hugely important for establishing this relationship and it is my chance to set the tone for learning.[5]

Drawing on my knowledge of and respect for Māori ways of teaching and learning, I embed four key principles to support student learning and set the tone for lessons ahead:

- **Whakawhanaungatanga:** *(First, get to know each other).* At my first encounter with a class I try to get to know basic things about my students (e.g. where are they from, favourite food) and then let students know a little about me. My introduction takes the form of a greeting in Māori as I want Te Reo to be the very first words my students hear from me, a pākeha scientist researching and teaching within Aotearoa/New Zealand. This introduction serves two further purposes: firstly I do it to acknowledge Māori as our treaty partners; and secondly to signal that if you are to be a modern ecologist/biologist in New Zealand, meaningful engagement with Māori communities is essential.

- **Manaakitanga:** *(Show generosity, respect, and care for one another).* A good relationship among classmates, and students and the lecturer is vital to help students fulfil their academic potential. It helps students to feel they are in a safe space to try something new, and not be embarrassed to get it wrong.

- **Ako:** *(A reciprocal relationship between student and teacher).* At university, students assume their teachers are content experts. What matters is the relationship between teacher and student facilitating the 'step-change' in a student's understanding and expectation of excellence. I seek to negate power differences and barriers where possible and instil a lifelong love of learning. I love chatting with the students after the class, as often they teach me something by suggesting novel and compelling ways of describing a phenomenon and posing questions which lead me to reflect on my own understanding.

[5] Lane AK, Meaders CL, Shuman JK, Stetzer MR, Vinson EL, Couch BA, Smith MK, Stains M (2021) 'Making a First Impression: Exploring What Instructors Do and Say on the First Day of Introductory STEM Courses'. *CBE—Life Sciences Education* 20:ar7

Building whakawhanaugatanga for a new class

Engendering a sense of membership for all students

The first fifteen minutes with a new class is the most exciting and important and has nothing to do with transmission of scientific facts. This is *the* opportunity to set the tone for my teaching.

There is where *whakawhanaungātanga* and *manaakitanga* really come to the fore. By sharing something of myself with them, I hope they can see I am genuine and have their best interests at heart. Maybe they had similar experiences to my academic journey? Given that I teach at my alma mater I can point out that I was sitting in those exact seats many moons ago – why? To show where university can take them and that I understand what they are going through.

In smaller (typically postgraduate classes) I ask students to introduce themselves but for larger classes I have to be more creative. For example, in each successive lecture I ask different groups of students to send me a greeting. I might ask students from the Pacific to email me a greeting that we can all practise at the start of class. The next lecture might be a greeting from students with Asian heritage, and so on around the world. The hope is to engender a sense of shared membership and respect among all students in the class.

Once we know who we are I then outline the ground rules for our learning community. I point to all walls of the lecture theatre and say to the students that "This is a safe, inclusive learning space. We will not laugh at anyone who has the courage to put forward an answer".

Pacing learning and content delivery to reduce student anxiety

To reduce the stress on the class (and lecturer) I have reverted to simplicity. That is, rather than using the latest sophisticated learning technology, I simply use paper now as it requires no updates, its operating systems do not become obsolete and it never suffers from flat batteries!

> *Clear concise answers, and a beautiful teaching pace. I feel at ease in this class.*
>
> *BIOSCI 103, 2011*

> *Professor Brendon is probably my favourite lecturer in BIOSCI103 because I like how he makes lectures fun and he uses humour which surprisingly helps me because it sticks to my brain. I also like how he uses the document camera to write notes with us and he explains the topic very well.*
>
> *BIOSCI103, 2019*

This approach was motivated by observing A/P Nigel Birch teach Biochemistry to Stage 1 students. At the time I was looking for the latest teaching tool, but I noticed he simply used pen and paper to annotate complex enzymatic reactions. What appealed to me, wasn't so much the simple teaching tool, but way in which these simple tools helped him to slow down content delivery, remove distractions, and signal to students what was important.

A challenge for lecturers is to integrate new disciplinary content into our teaching and ensure we are covering "the field" as it exponentially increases. It is important students can pick up a concept (e.g. stress physiology), integrate it with another (animal breeding state, foraging, oceanography), and then supplement with appropriate contemporary examples as necessary. To ensure students really understand key concepts I have switched from a content-heavy, douse-them-in-PowerPoint-slides and "fifty minutes of facts" model to:

'*write three key notes, show an image, elaborate….write more notes, image, get students to perform/dance/act out a concept, as a class let's recap that, what do we now know, do we need to go back?"*.

There is evidence that reducing volume of content can improve learning[6]. It also allows me to inject a bit of fun into the class and explore a concept more fully.

In this way I provide the intellectual framework and expect students to fill in the gaps with the reading I have set. This is hardly ground-breaking stuff but it allows me to pick up and discuss key concepts with 300 students, as well as utilise opportunities for peer learning in a safe space, e.g. discussions and questions among students, but also questions thrown out to the class.

Almost all feedback on this simple approach is positive, as shown in typical student evaluation feedback below.

> *The way he would make the class physically do things that would help them learn (stand everybody up and make them do things to remember). That he wouldn't just put everything on the slides he would also write it down under the camera on paper, and he would also do drawings to illustrate what we had to learn.*
>
> *BIOSCI103, 2019*

> *Approaching lectures with a slower pace was a nice change – I had a little more time to process information as content was being delivered. Handwriting notes also allowed for immediate (thoughtful) interaction with information.*
>
> *BIOSCI103, 2019*

Not everyone likes it with some students complaining the back and forward between slides and document camera, and paper is distracting. In response, I have endeavoured to make the continuity between them much more polished and effective.

[6] Petersen CI, Baepler P, Beitz A, Ching P, Gorman KS, Neudauer CL, Rozaitis W, Walker J, Wingert D (2020) The tyranny of content:"Content coverage" as a barrier to evidence-based teaching approaches and ways to overcome it. CBE—Life Sciences Education 19:ar17.

Increasing student engagement through active learning

When taking a Te Reo Māori class in 2009, I noticed the ease with which new kupu/words were learnt when coupled with a hand action e.g. during a haka. So, I wondered could I utilise this approach in my teaching? I was curious especially about whether this would work for Zoology which is dense with terminology, and can be an endless roll-call of traits, characters, and phylogenetic relationships.

To help students, I developed a series of hand actions and body movements to learn the traits of the Phylum Chordata (e.g. dorsal hollow nerve cord, muscular post anal tail) in BIOSCI 103 'Comparative Animal Biology'. Not only did this approach prove effective as a learning tool, it was a great chance for all of us to make idiots of ourselves, and always fills the lecture theatre with laughter.

I was pleased to find that students enjoy the movements, with over half the class describing them as a highlight in the anonymous comments section of my evaluation for that course, offering comments such as:

Please encourage all biology lecturers to use these because biology is another language and these methods work!

BIOSCI103, 2014

These methods are almost a rite of passage for biology students now. Both my undergraduate and postgraduate students bond over their shared experience of having to do these and, particularly gratifyingly for me, they still perform the actions and note what traits they describe six years later!

Use of 'Dance' to teach Cellular Biology

Seeking to cater for all learning modalities, I have also trialled kinaesthetic learning approaches (in their broadest sense) with BIOSCI 91F. 'BISOCI91F Foundation Biology' can be a challenging course for students and requires a great deal of reflection and continuous improvement of teaching practices.

Students in this course are often from non-traditional backgrounds and have failed to achieve University Entrance. Here I made every effort to cater to all modalities of learning i.e. kinaesthetic, auditory and visual, in order to improve outcomes for my students. To help students learn conceptually difficult material, I choreographed a dance that students perform in lectures to learn the "Central dogma of molecular biology".

Here a student acts as messenger RNA and dances through a path to produce a protein, on the way interacting with other molecules (DNA, transferRNA) and structures (nuclear pore, ribosome). This offers an opportunity for the class to move and associate aspects of their movement to steps in the process of producing a protein.

I was particularly proud of the fact that I was lecturing content (Cell Biology) that is outside of my research specialty (Marine Biology) yet from my student evaluations it is apparent I did a successful job with 95% of students agreeing that overall I was an effective teacher.

Lab+lecture teaching innovation

In 2013 I trialled another teaching innovation in BIOSCI91F which replaced lectures with tutorials and delivered lecture content in laboratory sessions where students could perform short interactions with lab experiments, hand action memory tasks, and teaching models of cells that illuminated the content delivered in mini tutorials.

I obtained University Human Participants Ethics Committee approval to undertake a study of the "Lab+lecture" innovation in order to compare its efficacy with previous years. Comments from students were that they found this an easier way to learn as they were able to interact with the material, and wished to see more of this style in their future classes as evidenced in Figure 1 below.

"I feel that the lab session did clear up a lot of questions that I had, especially having the cell model in front of me"

"It was easy for me to understand and retain the information when I was doing hands on work"

"I personally would like more lab/tutorial session where it is a smaller group"

BIOSCI91F, 2013

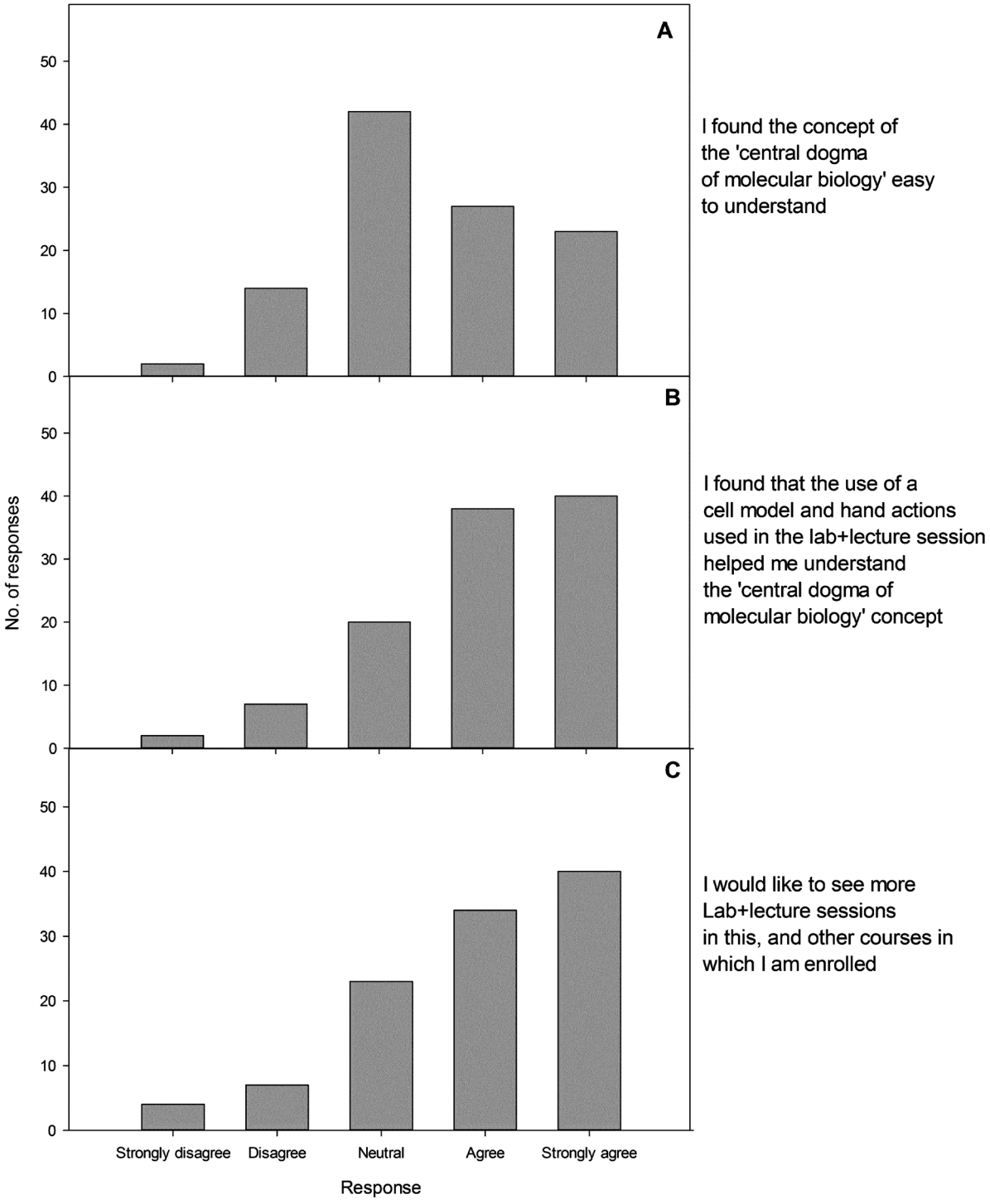

Figure 1: Compilation of questionnaire results from 'Lab+lecture' teaching innovation undertaken in BIOSCI91F, 2013

Interestingly, by interacting with teaching materials, rather than passively listening, students believed their understanding of this key principle in cell biology was improved.

However, this did not result in a huge upswing in test performance compared to other cohorts in this class (Figure 2). Nonetheless, reduction and/or replacement of content with laboratory demonstrations resulted in a slight improvement in students' performance in assessments which were their first at university. This innovation was therefore beneficial in helping students to bridge the gap between school and university assessments.

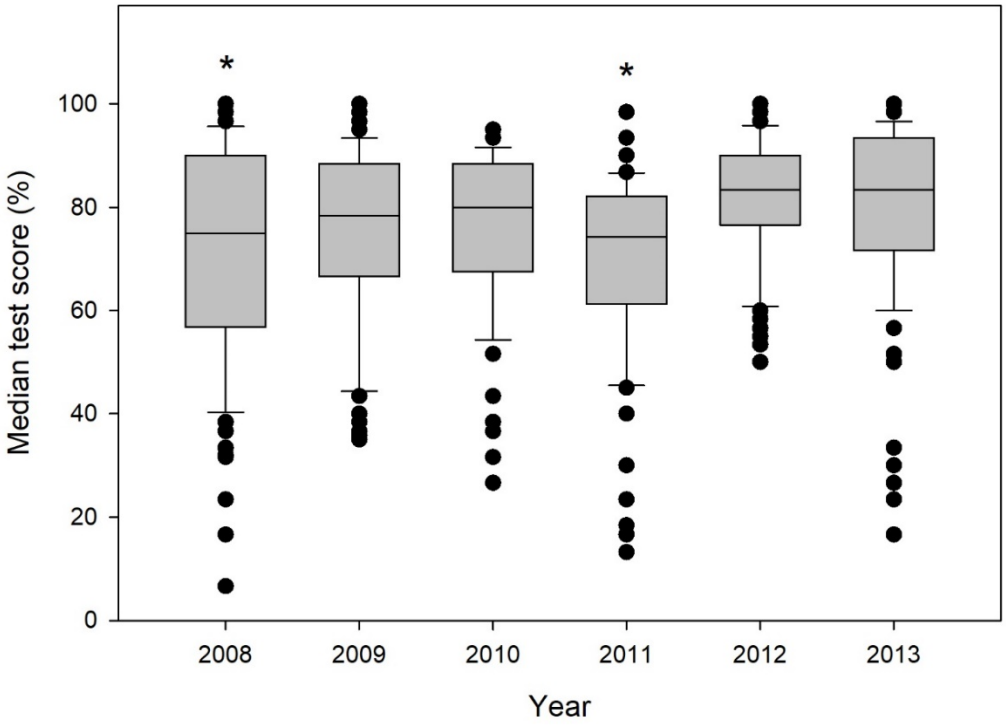

Figure 2: Comparison of BIOSCI91F in course test results years 2008-2013. In 2013 the 'Lab+lecture' teaching innovation was undertaken in BIOSCI91F. Significantly higher ($p < 0.05$) Median test scores of 2013 cohort are indicated by *.

Supporting pathways to doctoral study for foundation students

Supervision of postgraduate students is a highly rewarding, and sometimes highly challenging, endeavour. Guiding students to be independent researchers has developed me as a supervisor, scholar, and scientist. I am particularly proud that a fair number (10/38 students) of my postgraduate students are of Māori and Pasifika heritage, and two were taught by me in the foundation programme.

I am thrilled that one of these two students recently received an HRC scholarship for her PhD in nutrition science (Theresa Alipia). Theresa's road through education was atypical. As a solo mum she had to devote significant amounts of time to raising her son whilst caring for her chronically ill mother. Her success has inspired her son who is now at the University and thriving within a Bachelor of Arts. I was happy to assist her on her journey and offer support in whatever way I could.

> *I have known and been taught by Brendon when I was a student in the University's Foundation programme in 2006 and then onto my bachelor's degree. I then continued onto a master's thesis project under Brendon's supervision. Brendon has been a pillar of support not only in the academic realm but also through the challenging times of juggling my studies with the intense care of my mum who had significant health demands.*
>
> *There were many a time when I felt like throwing the towel in especially after my mum's passing but Brendon was always there with a box of tissue handy, and lots of time to listen, with words of support and kindness in encouragement to be strong and to keep going.*
>
> *T. Alipia, Former Foundation student & current PhD candidate, 2021*

Teaching performance

My passion for teaching has been recognised with awards from both my University, my Faculty, and my Department. I continually strive to improve my teaching and have been involved with University Learning Enhancement Grant projects (2006, 2008, and 2018) to try new approaches and develop new resources. As my teaching load has increased, I have maintained strong teaching evaluation scores with results continually in the 90-95% A+SA range (see Table 1).

Table 1: Results of teaching evaluations for both lecturing and courses I coordinate

Year	Course code	Enrolment	No. responses	"Overall, the lecturer was an effective teacher" %Agree/Strongly Agree	"Overall, I was satisfied with the quality of this course" %Agree/Strongly Agree
2005	BIOSCI91F	95	59		95%
2006	BIOSCI 91F	95	76	97%	
2008	BIOSCI 92F	84	39	92%	
2009	BIOSCI 103	291	96		76%
2010	BIOSCI 91F	100	78	95%	
2011	BIOSCI 91F	118	89		85%
	BIOSCI 103	322	117	92%	
2012	BIOSCI103	376	190		76
2014	BIOSCI 103	340	161	86%	
2015	BIOSCI 103	298	118		72%
2016	BIOSCI 210*	122	35	86%	86%
	BIOSCI 335	55	19	100%	100%
	BIOSCI 727	14	11	100%	100%
2017	BIOSCI210	117	22	91%	91%
2018	BIOSCI 103	312	53	96%	96%
	BIOSCI 103	312	53	94%	94%
	BIOSCI 206	69	17	94%	94%
	BIOSCI 210	127	23	91%	90.9%
	BIOSCI 335	61	22	100%	100%
	BIOSCI 328	55	19	94%	94%
	BIOSCI 727	21	7	100%	100%
2019	BIOSCI 108*	329	117		70%
	BIOSCI 108*	329	117	91.0%	
	BIOSCI 206	77	27	88.9%	
	BIOSCI 208*	94	23	100%	
	BIOSCI 328	50	15	100%	
2020	BIOSCI 335	65	17	94%	
	BIOSCI 727	20	12	89%	

Notes:
** denotes either new course or lecturing block. Also 2020 teaching not included due to Covid-19 issues around SET scores*
2005-2015 data: Course and teaching evaluations conducted separately. Not required every time a course was taught.
2016-2017 data: Course and teaching evaluations conducted together. Not required every time a course was taught
2018-2021 data: Course and teaching evaluations required every time a course is taught

The most informative part of our teaching evaluations are students' open-ended comments. Whilst it is always gratifying to read positive comments, I am particularly interested in the suggestions students make to improve. From these I reflect upon the methods I am using: are they fit for purpose? Do I need to adapt for next year? Is there a better way? Is the class happy?

Awards received:

- 2014 Faculty of Science Deans Award for Teaching excellence
- 2018 School of Biological Sciences Teaching Citizenship award
- 2019 Faculty of Science Deans Award for Teaching excellence
- 2020 School of Biological Sciences Teaching Excellence award
- 2020 The University of Auckland Sustained Teaching Excellence Award

My lecturing was peer observed by a colleague from the Faculty of Health and Medical Sciences in 2013. It was very encouraging that the general tenor of this review was positive:

> *Overall, I think Brendon's use of analogies / examples go a long way towards helping students to relate to the concepts of molecular biology. When Brendon was talking about peroxisomes, he frankly admitted that the exact mechanism by which peroxisomes form are yet unknown; he took the opportunity to highlight the beauty of the mystery of science, and encouraged students to consider conducting post-graduate research on the peroxisome so that he may update his slides in the future. I thought this was a very nice touch.*
>
> *FHMS colleague evaluation, 2013*

Teaching leadership & curriculum development

I am increasingly sought out for teaching leadership roles because of my teaching evaluation results and the feedback of colleagues and students.

Building learning communities for Māori and Pasifika students

One of my roles in my department is Tuākana programme academic coordinator which I took over from Professor Michael Walker. Developed by Mike, the Tuākana programme is a learning community for Māori and Pasifika (M/PI) students across the University of Auckland. While it has been successful, one of the challenges for programmes of this nature is they can be incorrectly perceived as remedial, with a focus on "support" associated with deficit thinking.

With the blessing (and valued guidance) of Mike Walker, I instituted small but significant shifts. For example, changing the language around the programme in our department to that of a learning community where 'opportunity', and 'community', are emphasised. The mode of delivery hasn't changed, but how it is perceived and described, has. After three years, the programme is now seen as a community and we have been able to add two extra tutorial rooms. In fact, the new rooms have been crucial to lifting student engagement levels within the department, highlighting to me the importance of physical space within the institution for M/PI students to just 'be'. By accommodating more students, we now have a surfeit of tutor applications to assist the programme, as more students are using the space.

Whilst predominantly a service role, my Tuākana work spills over into my teaching. It has made me acutely aware of the barriers Māori and Pasifika students face at University and evermore determined to help break them down. The contribution I can make is to show that Māori and Pasifika success is everyone's responsibility, not just the role of Māori and Pasifika staff.

> *As a first-generation Pacific Island (PI) university graduate, navigating the academic scene has been trying. However, Brendon has been integral in enabling my ability to make well-informed decisions. His ability to meaningfully connect with and advocate for Māori/PI success is further reflected in his prominent involvement in and leadership of the School of Biological Sciences Tuākana Programme. An inclusive Māori/PI learning community purposed to combat inequities experienced by our students.*
>
> *(Student, 2021 and Kupe Scholarship recipient)*

During recent far-right propaganda outbreaks on our campus, I had the opportunity to be able to sit and chat with our Tuākana students and just listen to their experiences of racism on campus. The message I received was that the racism our M/PI students endured from academic staff took the form of diminished expectations and other signals that the University was not "their" place.

I am furious that this kind of racism still endures, and therefore motivated to make the teaching environment in my Department more inclusive, equitable, and accurately contextualised. I work to shape my department's teaching culture by representing Māori and Pasifika student voices on departmental executive and Putaiao committees. This can be through simple things such as bilingual signage around the department, or greetings staff can use, through to the more contentious issue (for some staff) of how we can best teach Mātauranga Māori within our curriculum.

Last year, I requested to be on our Departmental Teaching Learning Quality Committee so I could represent the voices of our Māori and Pasifika students when significant decisions are made. This has led to work analysing the last decade of M/PI student enrolments, looking at what schools and deciles they came from, and seeing how they are performing relative to other cultural groups. The point is to identify and applaud where the department is doing well and where we can improve.

Introduction of Takaparawha field trips

I contribute to teaching strategies that will equip our students for tomorrow's world. One of the developments I am most proud of is the establishment in 2019 of BIOSCI 108 field trips to Takaparawha (Bastion Point) in collaboration with Ngāti Whātua Ōrākei.

The fieldtrips were something Michael Steedman (former Kaiārahi in the Faculty of Science) and I envisioned back in 2011 and worked through the tikanga to get underway. The objective is for a dataset to be accumulated by BIOSCI108 cohorts over the next 30 years. On-going hui with Ngāti Whātua Ōrākei will advise what types of data is collected to map the restoration of their precious ancestral lands and further cement the relationship with the University.

Additionally, Ngāti Whātua Ōrākei representatives provide a guest lecture to our students to illuminate the history and significance of the land they are about to visit. This was a massive team effort and it was gratifying to see it finally come to fruition.

A further benefit, a motivator, is that through my teaching I get to give back to the community. The students are also thrilled by this activity, and anecdotal comments

highlight their enjoyment in knowing the data they collect will be part of a bigger, long-term project.

Contribution to the wider community

Addressing barriers facing Māori learners within the Sciences

Statistics show that those with a higher education have improved outcomes in terms of health, wealth, and overall happiness[7]. Facilitating access to education for under-represented groups is a key goal for me. In particular, I want to understand why comparatively fewer Māori continue in science, or even achieve Level 1 NCEA. In this, I am spurred on by a memory.

When my daughter was at kura she had brought a friend over to stay at our house. This girl was from a whanau with its fair share of problems and there was little money in the house. What I remember most is her excitement at being able to use my work computer to do her homework, as there was no computer in her home. She sat there for at least four hours working away, catching up, and had me print it all out so she could hand it in the next day. What is seared in my mind is her quiet determination to learn when given the chance.

To try and increase Māori participation in tertiary education I provide talks on science and scientists wherever possible to Māori rangatahi. I want university to be considered a possibility for anyone. I still maintain a relationship with the kura my kids attended, and have arranged lessons for kura kids at University, in addition to talks by Māori and non-Māori scientists. I have also arranged surplus scientific equipment (e.g.microscopes), to be provided to the kura and run a microscopy lesson at the kura - auē, that was a different type of teaching! I have provided day-long marine life workshops for Year 10 students from Ngāti Whātua Ōrākei at a 'Matatahi day' and Te Rarawa rangatahi at their 'Noho Putaiao'. The point is to normalise University and science as much as possible, to show that all people are scientists, just that some of us use quantitative statistics in our analyses.

Promoting science to secondary school students and teachers

I believe it is essential for an academic institution to be present with its community. The Ivory Tower moniker does not sit well with me. To that end, I have provided presentations to primary and secondary school students (Glen Eden Intermediate, Baradene College, Manurewa High School) and local community groups highlighting how science is attempting to meet the challenges of our times. A key plank of this is to promote science as a career for students and to illustrate what it is we 'do'.

[7] Dziechciarz-Duda M, Król A (2013) On the non-monetary benefits of tertiary education. Ekonometria 3:78-94.

I was also fortunate to be invited to participate in professional development days for secondary school teachers run by the Maurice Wilkins Centre in 2018. These were held for teachers from Auckland, Nelson, and Christchurch with the goal of presenting the latest findings in our fields. I thoroughly enjoyed this opportunity to link with teachers and see how we can better connect between these two steps within the education system.

Ongoing commitment to improving University Biology teaching

My contributions to ensuring tertiary biology is taught to a high standard within the country are both solo and team-based endeavours. I was part of the initial discussions in setting up the First Year Science Educators Colloquium (FYSEC formerly FYBEC), a group of stage one lecturing staff from New Zealand and Australia who meet annually to share best practice. In addition to presenting at this conference at most meetings, I helped organise and host it at the University of Auckland in 2012, a great honour.

I have also been part of teams that have received University Learning Enhancement Grants to develop teaching initiatives such as StudyTXT cell phone flash cards (2006); a website for the McGregor museum (www.mcgregor.sbs.auckland.ac.nz) for teaching purposes (2009); and the use of virtual reality software in teaching (2017). Moreover, my expertise has been sought on multiple Curious Minds applications being led out the Leigh Marine Laboratory staff, and also on Ngāti Whātua Ōrākei's successful Matatahi Putaiao bid in 2016.

Concluding remarks

In writing this portfolio, I confess to having something of an epiphany. Two key planks of my teaching effort appear, both of which are about reducing barriers to student learning. Taking active approaches to reduce unnecessary stressors that can impede student learning is highly important to me, particularly with my research background in stress physiology. Secondly, reducing barriers for those who do not typically access higher education is a passion. The net societal gain for these students is proportionately higher than for students with a rich family history of higher education.

I am very proud to be a tertiary level teacher, but prouder still of the graduates our country produces. Looking ahead I want to focus on how to adequately address Mātauranga Māori as it relates to Biology within the tertiary curriculum. I am particularly interested in how we do justice to both ways of knowing whilst protecting the mana of each. Within their employment our graduates are increasingly being asked to walk comfortably within different knowledge systems; it is contingent upon us to ensure their transition is not too stark.