

Commentary

On Issues of Higher Education and Research

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Teaching and Learning in a Research-led University

In previous issues of Commentary we discussed the characteristics and contribution of research-led universities. In this issue of Commentary we look at the distinctive student learning environment offered by research-led universities. We explore the importance of high-quality research-informed teaching to the educational experience of students. Finally, we look at the ways universities can remain focused on teaching in a research-intensive environment.

At the core of a university

'A university is about learning that molds a lifetime, learning that transmits the heritage of the millennia, learning that shapes the future. It is thus, crucially, about teaching.'¹

As an institution of higher learning, a university is fundamentally concerned with the exchange of ideas and the transmission of knowledge. Education and training are at the core of the role of a university.

Here in New Zealand, the primacy and unique nature of a university's teaching role are both acknowledged and legislated through the Education Act 1989, which states that universities 'are primarily concerned with more advanced learning, the principal aim being to develop intellectual independence'.²

Each year, approximately 145,000 New Zealanders enrol in university

undergraduate and postgraduate programmes, and more than 50,000 degrees, diplomas and certificates are awarded by our eight universities.³ New Zealand now ranks amongst the highest in the OECD in the proportion of 25-64 year olds with a bachelors degree or higher (at 25 percent compared with an OECD average of 20 percent); amongst 20-24 year olds, the graduation rate from degree-level study now exceeds 50 percent.⁴

Why does high-quality teaching matter?

For those students who enrol in university-level study, the time spent at university (or, in the case of distance learning students, engaged with the university from afar) represents more than just a path to a qualification. The experiences they have along the way also shape their future

interests, employment options and desire for further learning.

University teachers aim to encourage student achievement, to enable students to become 'creative and critical thinkers ... with the capacity to learn both independently and collaboratively', and to engender a life-long interest in learning.⁵ Good teachers do this by:

- understanding the relationship between knowledge and how students learn, and integrating that knowledge into course design and delivery
- understanding the various contexts and settings in which teaching takes place (eg distance or face to face teaching, classroom, laboratory, field setting, practicum)
- having a mastery of the field of inquiry and its particular concerns; and

¹ Drew Gilpin Faust, President of Harvard University. Extract from speech to the Harvard College Fund, 20 October 2007. 'At the heart of what we do - teaching and learning'. Available online: www.president.harvard.edu/speeches/faust/071020_hcf.php

² Education Act 1989, Section 162 (4)(a)(i).

³ In 2008, a total of 147,128 students (or 111,300 full-time equivalent students) were enrolled in New Zealand's eight universities. Source: 2008 Tertiary Statistics (student participation) available from www.educationcounts.govt.nz. Graduation figures were sourced from the 2007 Annual Reports of the universities.

⁴ OECD, 2009. 'Education at a Glance 2009'. Figures relate to 'Tertiary-type A' graduation rates. The OECD defines Tertiary-type A as having 'a minimum cumulative theoretical duration (at tertiary level) of three years' full-time equivalent, although they typically last four or more years'.

⁵ University of South Australia, 2001. University Teaching. Available online: www.unisa.edu.au/policies/codes/goodprac/univ.asp.

- understanding and respecting individual students and student groups and their different backgrounds, needs, values and experiences.⁶

For universities, a commitment to high-quality teaching sits alongside their commitment to high-quality research. Integration of the two means a commitment to students' intellectual development, critical thinking, and the development of specialised knowledge – all within a research-led teaching and learning environment. Teachers who are researchers bring to the classroom a personal experience and understanding of the search for knowledge and the excitement of discovery which cannot be gained in any other way.

What is research-led teaching?

Research-led teaching reflects and makes use of the teacher's disciplinary research to benefit student learning and outcomes.

The legal context

The provision of a research-led teaching environment is laid out in legislation as a requirement and distinctive characteristic of New Zealand universities:

Education Act 1989, Section 162 (4)(a)(ii): 'Their [*the universities*'] research and teaching are closely interdependent and most of their teaching is done by people who are active in advancing knowledge.'

Education Act 1989, Section 254 (3): 'the Authority [New Zealand Qualifications Authority] shall not consent to the granting of an award that is described as a degree unless it is satisfied that the award recognises the completion of a course of advanced learning that– (a) is taught mainly by people engaged in research.'

Also referred to as 'research-based teaching' or 'the teaching-research nexus', research-led teaching and learning offer a distinctive learning environment and are defining characteristics of New Zealand universities.⁷

Research-led teaching encompasses many elements and can take many different forms, some of which depend on the teacher's teaching methods, discipline, research interests and view of research (for example, as an individual endeavour, as a series of discoveries, as an outward-looking process alongside activities such as attending conferences and engaging in teamwork but all leading to the advancement of knowledge).⁸

By way of example, in a study prepared for the UK Higher Education Academy, Trowler and Wareham (2007) found seven distinct and observable aspects of the linkages between teaching and research – some or all of which might be found in a research-led learning environment:

1. Learners doing research
2. Teachers doing research
3. Teachers and learners doing research together
4. Research embedded in the curriculum
5. Research culture influences teaching and learning
6. The 'nexus', the university and its environment (ie research-teaching links offer opportunities for knowledge transfer)
7. Teaching and learning influences research.⁹

Hence, research-led teaching potentially offers a unique set of opportunities for interaction and learning, inquiry, the extension of skills and the building of greater understanding. This is consistent with a focus on excellent teaching; as Boyer noted in his 1991 review of scholarship within universities, 'teaching, at its best, means not only transmitting knowledge, but transforming and extending it as well'.¹⁰ Research-led teaching has transformation and extension of knowledge as its aim.

At the undergraduate level, much of the emphasis is on the integration of research into the curriculum. There are four main ways that disciplinary research might be integrated into the curriculum:

1. The outcomes of recent research are included in the curriculum.
2. Students learn how to conduct research in the discipline, usually as part of assessment tasks.
3. During the course of their study, students learn how to use the research tools of their discipline – eg statistical analysis software, primary sources, and sophisticated research equipment.
4. The teaching of the curriculum and student learning take place in a broader context which is characterised by a culture that values research; ie staff research papers are discussed and on display, students participate in departmental research seminars, and students work with researchers on specific projects.

The benefits of research-led learning

For students, there are four main benefits of learning within a research-led teaching environment:

1. Deeper understanding of the knowledge bases of the disciplines and professions which they are studying, including research methods, and the research challenges and issues these disciplines and professions currently face.
2. Development of intellectual capabilities, enhancement of their skills for employment, and expansion of their capacity for lifelong learning.
3. Experience of independent research and inquiry – with benefits for employers and future study options.
4. Enhanced engagement in their studies and development of their capacity for independent learning.¹¹

Studies have confirmed the value students place on the link between teaching and research. They suggest that research-led teaching can lead to more 'meaningful exchanges and dialogues' between staff and students, which are effective in developing the high-level skills necessary to meet the learning outcomes of the course or

⁶ *ibid.*; The University of Auckland, Guidelines for Effective Teaching. Available online: www.auckland.ac.nz/uaa/home/about/teaching-learning/policies-procedures.

⁷ Several other terms are employed, such as 'research-linked', 'research-informed', or 'research-infused' teaching. Further discussion is available on the Teaching-Research Nexus project website: <http://trnexus.edu.au/index.php?page=definitions-of-the-trn>.

⁸ Angela Brew, 'Understanding Research-Led Teaching', HERDSA News, Vol.25, No. 1, April 2003.

⁹ Paul Trowler and Terry Wareham, Tribes, territories, research and teaching: Enhancing the teaching-research nexus. Report to the Higher Education Academy, June 2008. Available online: www.heacademy.ac.uk/assets/York/Trowler_Final_Report.pdf

¹⁰ E L Boyer, 'The Scholarship of Teaching from Scholarship Reconsidered: Priorities of the Professoriate', *College Teaching*, Vol. 39, 1991.

¹¹ Teaching-Research Nexus, 2009. *Benefits for Students*. Available online: <http://trnexus.edu.au/index.php?page=benefits-for-students>.

programme. These high-level skills are transferable and are likely to support more advanced levels of learning.¹²

The development of high-level skills and success at higher levels of learning are both priority outcomes sought from New Zealand's tertiary education institutions.¹³ Recognising the importance of the student experience to academic success, the Government expects improvements in completion and retention rates to be achieved, in part, through a focus on quality teaching and learning.¹⁴ Studies have shown that academically engaged students are more likely to complete and progress within tertiary education.¹⁵

For employers, this can mean prospective new employees who not only demonstrate subject area knowledge, but are also well-versed in research methodologies, have real experience of being part of a team, are capable of critical thinking, and show potential for leadership.

Of course the student is not the only participant in the learning process. The development of a strong culture of research-led teaching requires the university to display a real and ongoing commitment to the research interests and professional development of its staff. Increased interaction between staff members, as well as potential benefits from meaningful interaction with students about research processes, outcomes and issues, can also lead to enhanced research and teaching performance and enjoyment of teaching.

It should be noted, however, that the accrual of any or all of the above benefits to students and staff is not guaranteed. Instead, the potential value of research to student learning is highly dependent on it being designed appropriately, systematically and successfully integrated into the curriculum, taught well, and supported by the department and university policies and

practices. Effective teaching also needs to demonstrate a commitment to scholarly values and academic integrity. Learning and assessment within a research-led environment provides multiple opportunities for students to develop their understanding of ethical practices that can be transferred from one learning situation to another, including from the undergraduate classroom to postgraduate research, and on to employment and wider aspects of life.¹⁷

The varying attributes and motivations of individual teachers are also critically important. The assumption that high quality researchers are not often good teachers is disproved by the performance of many senior academics. It is true, however, that this combination depends on a commitment to high-quality teaching on behalf of both the teacher and the university.

In a 1996 meta-analysis of the relationship between teaching and research, Hattie and Marsh concluded that good teaching does not necessarily flow from good research, but that the aim for universities is to 'increase the circumstances in which teaching and research have occasion to meet'.¹⁸

Keeping an eye on the teaching ball

Research is a critical part of a university's role in the creation and dissemination of knowledge. In recent years, universities in New Zealand and throughout the world have placed increasing emphasis on their research performance and on the commercialisation of research outputs. This is partly attributable to declining levels of public investment (and the need to find additional sources of funding), but also reflects a growing awareness of research as a driver of economic and social growth, and a greater interest shown by current and prospective students in the relative research strengths of individual institutions.¹⁹

Within such a research-intensive environment, universities work hard to sustain and promote their core commitment to teaching and learning. For a learning institution, a continual and systematic focus on the methods by which each university chooses to generate and transmit knowledge is vital.²⁰ This includes reviews of the teaching of individual staff, and university-wide teaching and learning policies, practices and decision-making.²¹

More than a decade ago, the National Association of State Universities and Land-Grant Colleges created the Kellogg Commission on the Future of State and Land-Grant Universities in the United States. Declaring that if public universities were to prosper in the future, 'they must become great student universities as well as great centres of research', over the next five years the Commission made a number of key observations and recommendations, many of which remain as relevant today for research universities looking to focus on teaching and learning:

- Start with values and mission – learning, discovery and engagement
- Foster institutional coherence through a commitment to specialised academic units with a stronger awareness of overall institutional autonomy
- Reinvigorate academic governance by rebuilding shared governance and academic trust
- Develop administrative leadership, with clear goals and processes
- Redefine the nature of acceptable scholarly work
- Strengthen the link between discovery and learning by creating more opportunities for students to experience the processes of research and community engagement.²²

¹² Mark Deakin, 'Research Led Teaching: a Review of Two Initiatives in Valuing the Link Between Teaching and Research', *Journal for Education in the Built Environment*, Vol. 1, Issue 1, March 2006, pp. 73-93

¹³ Ministry of Education, 2009. Tertiary Education Strategy 2010 – 2015. p13 'We expect to see better course and qualification completion and progression rates for students as a result of higher quality teaching and learning, and more effective and culturally responsive pastoral care.'

¹⁴ Ministry of Education, 2009. Draft Tertiary Education Strategy 2010 – 2015. 2.2.2 'We expect to see better completion and retention rates for students as a result of higher quality teaching and learning.'

¹⁵ Australian Council for Educational Research, 2009. *Engaging Students for Success*. Available online: www.acer.edu.au/documents/AUSSE_ASERReportWebVersion.pdf.

¹⁶ Alan Jenkins, Mick Healey, and Roger Zetter. 2007. *Linking Teaching and Research in Disciplines and Departments*. Available online: www.heacademy.ac.uk/assets/York/documents/LinkingTeachingAndResearch_April07.pdf.

¹⁷ The University of Auckland, 2009. *Guidelines for Effective Teaching*. Available online: www.auckland.ac.nz/webdav/site/central/shared/about/teaching-and-learning/policies-guidelines-procedures/documents/2009-04-guidelines-effective-teaching-v7.pdf

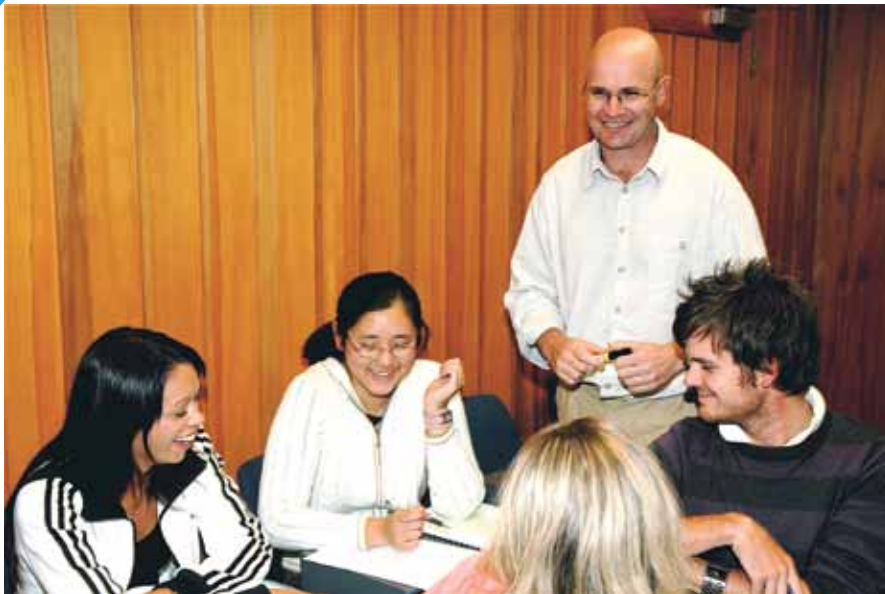
¹⁸ John Hattie and Herbert W Marsh, 'The Relationship between Research and Teaching: A Meta-Analysis', *Review of Educational Research*, Vol. 66, Issue 4, Winter 1996, p. 507.

¹⁹ Refer Commentary Issue 1 (August 2007) and Issue 4 (April 2009) for further discussion.

²⁰ Kellogg Commission, January 2000. *Returning to our Roots: Toward a Coherent Campus Culture*. Full reports are available online: www.aplu.org/NetCommunity/Page.aspx?pid=305.

²¹ Chris Knapper. 2005. 'Teaching and Learning in Canada's Research Universities'. Available online: [www.uofaweb.ualberta.ca/researchandstudents//pdfs/ChrisKnapper-TeachingandLearninginCanada'sResearchUniversities\(paper\).pdf](http://www.uofaweb.ualberta.ca/researchandstudents//pdfs/ChrisKnapper-TeachingandLearninginCanada'sResearchUniversities(paper).pdf)

²² Kellogg Commission. January 2000. *Returning to our Roots: Toward a Coherent Campus Culture*. p. 53.



More recently, a 2008 review of the teaching-research nexus in the United Kingdom found that attempts to enhance the link between teaching and research need to recognise and address both structural and individual factors. These factors can include how staff conceptualise their research, the incentives and disincentives to changing behaviours to enhance the links, and the influence of government and commercial funding sources.²³ It has also been suggested that greater emphasis needs to be placed on building academic communities of practice.²⁴

In New Zealand, the value and importance of high quality teaching are acknowledged by individual universities through annual teaching excellence awards, and nationally through the Tertiary Teaching Excellence Awards. Each year one Prime Minister's Supreme Award and up to nine Sustained Excellence awards are presented to teachers in the tertiary education sector.

The government also supports the promotion of quality teaching through Ako Aotearoa, New Zealand's first Centre for Tertiary Teaching Excellence. The Centre is part of a \$20 million Government initiative to boost the quality of teaching across the entire tertiary sector.

Many leading research universities recognise that they must also be leaders in the education and training of their undergraduate and postgraduate students. In the United States, Harvard University is refocusing on teaching skills and working hard to affirm (to its staff, students and the public) that teaching matters - and that it can be learned.²⁵ In Australia, the University of Melbourne's new 'Melbourne Model' is placing a strong emphasis on the quality, depth and breadth of the student learning experience. And in the United Kingdom, institutions such as the University of Manchester are developing and strongly promoting their focus on excellent teaching

"...universities are fundamentally about the education of students, both undergraduate and postgraduate ... it is clear that a university becomes non-viable unless it is a satisfactory destination for good students. There is a flaw in the business of a research university unless it is seen to be dedicated as much to the learning outcomes of students as to its research outcomes."²⁶

and learning, to sit alongside their growing reputation for high quality research:

Being taught by active researchers can be an exhilarating experience. Our research universities are stores of knowledge, discovery and opportunity that can transform the understanding and lives of their students.

²³ Trowler and Wareham, op.cit.

²⁴ Angela Brew, 'Teaching and Research: New Relationships and their Implications for Inquiry-based teaching and learning in Higher Education', *Higher Education Research and Development*, 22 (1), 2003, pp. 3-17.

²⁵ Drew Gilpin Faust, op.cit.

²⁶ Professor Alan Gilbert, President and Vice-Chancellor of the University of Manchester. Extract from interview in the *Times Higher Education*, 8 February 2008. Available online: www.timeshighereducation.co.uk/story.asp?sectioncode=26&storycode=400520&c=1.



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