

INTERNATIONAL POLICIES AND PRACTICES FOR ACADEMIC ENQUIRY
AN INTERNATIONAL COLLOQUIUM HELD AT
MARWELL CONFERENCE CENTRE, WINCHESTER, UK, 19–21 APRIL 2007

Linking Teaching and Research in National Systems

Mick Healey
and
Alan Jenkins

mhealey@glos.ac.uk; alanjenkins@brookes.ac.uk

“We see at the national level ... the vital importance of realizing the teaching and research nexus.”
(Jenkins *et al*, 2003, 135)

“Structural changes: research centres housed staff freed from teaching responsibilities; graduate schools became the arenas for research, leaving departments to organise undergraduate teaching. Each of these (developments) was particular and peculiar, but the trend was gradually of a separation, structurally of research from teaching.”
(McNay 1999, 196)

In many national systems, as in many institutions, policies for teaching and for research and for teaching are conceptualised and delivered separately – with little or no attention to how they might be linked or indeed their possible impacts on each other. Thus in England, HEFCE (2000, 26) stated:

“Despite the evidence of a synergistic relationship between teaching and research, we make no recommendation about this: it would be wrong to allow teaching issues to influence the allocation of funds for research.”

Indeed many of us argue that internationally the pressures for research selectivity, such as through the UK Research Assessment Exercise, are causing increased fissures between teaching and research in both the student and the staff experience (McNay, 1999). Thus Lucas’s (2006, 170) study of the impact of the (symbolic) value of research in departments of English and Biology in two contrasting UK universities (pre- and post-1992) revealed “a clear division in all departments between staff who were engaged in research and those involved in teaching activities, and a substantial perception that staff engaged in teaching and administration were undervalued.”

Here we briefly outline an international range of case studies of national policies which have sought to bring teaching and research together – and help institutions, course teams and individuals “develop a more integrated concept of academic enquiry” (Rowland, 2007, 1). In most cases they are recent and have been little researched as to their impact. However,

they do offer policy makers in national systems ideas and strategies to rethink their particular policies. We have organized them through considering different types of strategies:

1. Research councils support the research-teaching nexus
2. Legislative and national quality assurance/enhancement support
3. National support for investigation and promotion of the research-teaching nexus
4. National initiatives to broaden conceptualisation of academic work
5. National awards for integrating research and teaching
6. National designated funding for developing the research-teaching linkage

1 Research councils support the research-teaching nexus

US: National Science Foundation (NSF) grant applicants have to demonstrate their experience of engagement with pedagogy and service

www.nsf.gov/pubs/2003/nsf032/start.htm

All Senior Project Personnel applying to the NSF in the United States have to complete a section under the bibliographic sketch entitled 'synergistic activities'. This involves listing "up to five examples that demonstrate the broader impact of the individual's professional and scholarly activities that focuses on the integration and transfer of knowledge as well as its creation.

US: National Science Foundation (NSF) have established the Undergraduate Research Collaborative Program which seeks to include first and second year college students

www.nsf.gov/pubs/2006/nsf06521/nsf06521.htm;

www.nsf.gov/news/news_summ.jsp?cntn_id=104533

The Undergraduate Research Collaboratives (URC) Program seeks new models and partnerships with the potential (1) to expand the reach of undergraduate research to include first- and second-year college students; (2) to broaden participation and increase diversity in the student talent pool from which the nation's future technical workforce will be drawn; and (3) to enhance the research capacity, infrastructure, and culture of participating institutions. . The emphasis on participation of first- and second-year students in authentic research – the creation of new knowledge that is potentially publishable - will challenge the *imagination* and *creativity* of the community to rethink the directions of undergraduate education.

Ireland: Science Foundation for Ireland (SFI) sponsor undergraduate research experience and knowledge awards (UREKA)

www.sfi.ie/content/content.asp?section_id=505&language_id=1

SFI's Undergraduate Research Experience & Knowledge Award (UREKA) Programme offers undergraduate students the opportunity to work in research and to acquire a range of scientific skills during a ten to twelve week period during the summer. The programme aims to afford students from Ireland and abroad with an exceptional chance for interaction with world-class scientists and engineers in an innovative environment

UK: Research Councils UK sponsor Fellowship Awards to support postdoctorates to develop career paths into teaching and research and move from short term contracts to permanent positions

www.rcuk.ac.uk/acfellow/

RCUK have sponsored two rounds of fellowships since 2004. The Government has provided funds to create up to 1,000 new academic fellowships (200 a year, each lasting five years). Award recipients should have a PhD or be of postdoctoral standing. Typically recipients do an increasing amount of teaching over the course of the fellowship.

2 Legislative and national quality assurance/enhancement support

NZ: The research-teaching nexus is enshrined in legislation

In New Zealand, the Education Amendment Act (1990) states that “university teaching and research should be interdependent and that most of the teaching should be by those who are active in advancing knowledge.” New Zealand’s Academic Audit Unit *“is required to audit not only the research policies and procedures of the university, but also how it links research and teaching, and the effect of this link”* (Woodhouse 1998, 39). This national review of all universities in terms of their delivery of the teaching/research nexus took place in 2000, but the policy appears to have received less emphasis recently as more attention has been given to the Performance-Based Research Fund (PBRF)

www.tec.govt.nz/funding/research/pbrf/pbrf.htm. Michael Cullen (Tertiary Education Minister) recently suggested lifting the requirement that degrees must be taught by people involved in research.

Sources: Woodhouse (1998; 2001); Cullen (2006)

UK: Professional Standards Framework for Teaching and Supporting Learning in Higher Education

www.heacademy.ac.uk/regandaccr/StandardsFramework.pdf

The UK Professional Standards Framework for teaching and supporting learning in higher education has been developed for institutions to apply to their professional development programmes and activities. From 2006, the expectation is that new academic staff with less than three year’ teaching experience should obtain a national professional teacher qualification accredited by the Higher Education Academy. In order to demonstrate application of the standards, “integration of scholarship, research and professional activities with teaching and supporting learning” is one of the main foci.

UK: Quality Assurance Agency Benchmark Statements

www.qaa.ac.uk/academicinfrastructure/benchmark/default.asp

The honours degree benchmark statements, of which there are currently 46, almost all refer to aspects of the nexus as central to the requirement for honours classification. For example the Benchmark statement for English states that honours graduates “will be able to conduct research through self-formulated questions, supported by the gathering of relevant information and materials and organised lines of enquiry, resulting in a sustained piece or pieces of work of sustained argumentative and analytical power” (QAA, 2000, 7).

Scotland: Funded Research Teaching Links as a Quality Enhancement Theme

www.enhancementthemes.ac.uk/themes/ResearchTeaching/default.asp

Scotland’s quality assurance system has a strong focus on enhancement and collaboration between different agencies – with particular themes identified as areas for action. In 2006 research–teaching links was identified as one such theme. Activities will include sector-wide discussions on reflecting on, and exploring Research-Teaching Linkages including a focus on graduate attributes

www.enhancementthemes.ac.uk/themes/ResearchTeaching/attributes.asp;

and a secondary discipline-level strand which will focus on, the sharing of and developing on, current and emerging practice at the discipline level. Both strands are supported by funded projects.

3 National support for investigation and promotion of the research-teaching nexus

England: Some of the Higher Education Funding Council for England's (HEFCE) Centres for Excellence in Teaching and Learning (CETLS) are focused on inquiry and research-based learning

www.hefce.ac.uk/cetl

HEFCE established 74 CETLS in 2005 each of which received up to £2.35m capital and £0.5m recurrent expenditure pa for five years. Several are centrally concerned with aspects of the teaching-research nexus:

1. University of Gloucestershire, the Centre for Active Learning in Geography, Environment and Related Disciplines (www.glos.ac.uk/ceal/)
2. University of Manchester, Centre for Excellence in Enquiry-Based Learning (www.manchester.ac.uk/ceeb/)
3. University of Oxford Centre for Excellence in Preparing for Academic Practice (www.learning.ox.ac.uk/oli.php?page=196)
4. University of Reading Centre for Excellence in Teaching & Learning in Applied Undergraduate Research Skills (www.rdg.ac.uk/cdotl/cetl-aurs/)
5. University of Sheffield, Centre for Inquiry-based Learning in the Arts and Social Sciences (CILASS) (www.shef.ac.uk/cilass/)
6. University of Surrey, Surrey Centre for Excellence in Professional Training and Education (SCEPTRE) (portal.surrey.ac.uk/portal/page?_pageid=1218,1&_dad=portal&_schema=PORTAL)
7. Universities of Warwick and Oxford Brookes, The Reinvention Centre for Undergraduate Research www2.warwick.ac.uk/fac/soc/sociology/research/cetl/

UK: The Higher Education Academy has recognised supporting the research-teaching nexus is a priority

They have sponsored a number of initiatives including:

- Administering the Research Teaching Forum www.heacademy.ac.uk/RTForum.htm
- Organising a national conference in 2005 'The Teaching and Research Relationship: Developing Institutional Policy and Practice' www.heacademy.ac.uk/3849.htm and another in 2006 on 'Bringing Research and Teaching Together' www.heacademy.ac.uk/events/176_4752.htm
- Funding a project on 'Developing teaching research links through the disciplines' www.heacademy.ac.uk/850.htm; www.brookes.ac.uk/genericlink/; which covered five main subject centres; a follow-up project is collecting discipline-based case studies and interpretative essays in most of the remaining subject centres under the SNAS programme www.heacademy.ac.uk/990.htm
- Funding five projects on discipline-based teaching and research relations www.heacademy.ac.uk/4044.htm; www.heacademy.ac.uk/4588.htm.

Australia: Department of Employment, Training and Youth Affairs sponsored a study of the Research-Teaching Nexus in three contrasting universities

This early study of the research-teaching nexus compared the situation in three contrasting Australian Universities - University of Western Australia, Curtin University of Technology and Ballarat University.

Source: Zubrick *et al* 2001; see also Monash and Sydney benchmarking project below

Australia: The Carrick Institute for Learning and Teaching in Higher Education

www.carrickinstitute.edu.au/carrick/go/home/grants/pid/49;
www.cshe.unimelb.edu.au/pdfs/TRnexus.pdf

The Carrick Institute identified the nexus between teaching and research as an issue of emerging and continuing importance for funding in 2006-08 in the competitive grants programme. This now includes a project led by University of Melbourne with Griffith University and Queensland University of Technology - *The Academic's and Policy-Maker's Guides to the Teaching-research Nexus: A suite of resources for enhancing reflective practice*.

US: Reinvention Center

www.sunysb.edu/Reinventioncenter/index.html

The Reinvention Center at Stony Brook is a national center focusing on undergraduate education at research universities. The Center was born of the excitement and intense national and international interest generated by the Boyer Commission Report, [Reinventing Undergraduate Education: A Blueprint for America's Research Universities](#) (1998).

US: Council for Undergraduate Research (CUR)

www.cur.org/

The mission of the Council on Undergraduate Research is to support and promote high-quality undergraduate student-faculty collaborative research and scholarship. The Council on Undergraduate Research (CUR) and its affiliated colleges, universities, and individuals share a focus on providing undergraduate research opportunities for faculty and students at predominantly undergraduate institutions.

US: National Conferences on Undergraduate Research (NCUR)

www.ncur.org//basics/index.htm

NCUR holds an annual three-day conference of (mainly) student presenters, which has become a national celebration of undergraduate scholarly activity involving all academic disciplines and all institutions of higher education. NCUR's annual conferences also include sessions for faculty members and administrators to discuss starting, supporting, or maintaining departmental or institutional undergraduate research programs.

US: Project Kaleidoscope

www.pkal.org/

Project Kaleidoscope (PKAL) is one of the leading advocates in the United States for building and sustaining strong undergraduate programs in the fields of science, technology, engineering and mathematics (STEM).

US: Center for the Integration of Research, Teaching, and Learning (CIRTL)

cirtl.wceruw.org/

CIRTL promotes the development of a national faculty in science, technology, engineering, and mathematics (STEM) committed to implementing and advancing effective teaching practices for diverse student audiences as part of their professional careers. CIRTL is designing, implementing, and evaluating programs for STEM future faculty development. Teaching-as-Research, Learning Communities, and Learning-through-Diversity underlie all CIRTL activities.

Canada: Canadian Summit on the Integration of Research, Teaching and Learning

www.ualberta.ca/summit

Two annual summits, hosted by the University of Alberta at Edmonton, have so far been held in 2005 and 2006. The purpose is to bring together major Canadian and other international universities for discussion about the integration of teaching and research as a fundamental pillar of the undergraduate learning environment (Hoddinott and Wuetherick, 2006).

Canada: Policy Roundtable on Research, Teaching and Learning

The University of Guelph held a Policy Roundtable Discussion on Research, Teaching and Learning in post-secondary education in April 2006. The roundtable consisted of approx 35 leaders from government, universities and colleges, research councils, and professional bodies in Canada, plus an international adviser. Their report outlines the challenges and opportunities associated with the research/teaching/learning nexus in Canadian post-secondary education (PSE) (Christensen Hughes and Rog, 2006).

4 National initiatives to broaden conceptualisation of academic work

US: Carnegie Foundation for the Advancement of Teaching promotes Boyer's four scholarships, particularly SoTL

www.carnegiefoundation.org; www.carnegiefoundation.org/CASTL/highered/index.htm

The Carnegie Foundation has done much to promote the benefits of Boyer's four scholarships – discovery, application, integration and teaching. The Carnegie Academy for the Advancement of Scholarship of Teaching and Learning (CASTL) Program in Higher Education focuses on the fourth of these. The CASTL Higher Education Program includes three components: Carnegie Scholars Program; Campus Program; and Scholarly and Professional Societies Program. *Undergraduate Research* is one of themes of CASTL Leadership Program (2006-10).

Hong Kong: Research Assessment Exercise (RAE) is based on Boyer's four scholarships

www.ugc.edu.hk/eng/ugc/publication/prog/rae/rae.htm

Both the 1999 and 2006 RAEs in Hong Kong adopted Boyer's four scholarships as a framework for assessing academic work. They have been advised by the Carnegie Academy.

5 National awards for integrating research and teaching

US: The Howard Hughes Medical Institute (HHMI) have established HHMI Professors

www.hhmi.org/news/083101.html; www.hhmi.org/grants/individuals/professors.html

HHMI awarded \$1 million to each of 20 research scientists on the basis of their plans to transmit the excitement and values of scientific research to undergraduate education in 2002 and 2006. Those selected received the title "HHMI Professor" and received 4-year grants of \$250,000 annually to apply their creativity and enthusiasm to undergraduate teaching.

US: National Science Foundation Recognition Awards for the Integration of Research and Education

www.nsf.gov/od/oia/archives/raire.jsp

The Recognition Awards for the Integration of Research and Education (RAIRE) activity was created in 1996 to identify and recognize research-intensive universities that had been innovative and effective in promoting the integration of research and education at the highest level of the organization. In 1998 the NSF conducted a similar activity open to Baccalaureate I and II institutions under the Awards for the Integration of Research and Education (AIRE) program.

US: National Science Foundation Director's Awards Recognize Connection Between Research and Teaching

www.nsf.gov/od/lpa/news/02/pr0239.htm

In 2002 six faculty members received \$300,000 each to expand their work. Each had found significant ways to connect research with teaching and received the National Science Foundation (NSF) Director's Awards for Distinguished Teaching Scholars (DTS) for imaginative teaching applications in such areas as multimedia visualization, online resources for the study of fractal geometry, and spectroscopy and photochemistry to teach chemistry.

6 National designated funding for developing the research-teaching linkage

England: The Higher Education Funding Council for England (HEFCE) are supporting the development of research-informed teaching environments, with funds allocated *inversely* proportional to an institution's research funding

www.dfes.gov.uk/hegateway/hereform/heresearchforum/index.cfm;

www.hefce.ac.uk/pubs/hefce/2006/06_11/

www.hefce.ac.uk/learning/enhance/quality.htm

HEFCE announced in March 2006 additional funding to support research informed teaching (RIT) to be allocated in inverse proportion to an institution's research funding. This is part of HEFCE's Teaching Quality Enhancement Fund. £40m has been allocated over three years. The division between which universities received funding and those which did not, largely mirrors the old/new university divide.

HEFCE identified four areas where institutions could seek to invest funds:

- “keeping the curriculum up-to-date and active, effectively supported by appropriate learning resources linked to recent research
- enabling staff to engage with developments in their field and link to developments in their teaching
- ensuring that courses are designed in ways that support the development of learning outcomes appropriate to the knowledge economy, including appropriate pedagogy – that is, students experiencing research, and developing research skills
- embedding research-informed teaching in institutional structures, including human resources strategies and quality assurance processes.”

Acknowledgement

An earlier version of this paper was written as part of a presentation to the Canadian Federal Government Policy Roundtable Discussion on ‘Research, teaching and learning in post-secondary education’, Ontario, 18-19 April (Healey and Jenkins, 2006).

References

- Christensen Hughes, J and Rog E (2006) *Roundtable on research, teaching and learning* Report on Canadian Federal Government and University of Guelph Policy Roundtable Discussions, Guelph, 5-6 April www.mcmaster.ca/stlhe/projects/index.html
- Cullen (2006) Address to University Chancellors/Tertiary Advisory and Monitoring Unit Workshop, 11 April www.scoop.co.nz/stories/PA0604/S00202.htm
- Healey, M and Jenkins, A (2006) National and institutional initiatives on linking teaching and disciplinary research, Canadian Federal Government Policy Roundtable Discussion on 'Research, teaching and learning in post-secondary education', Ontario, 18-19 April
- HEFCE (Higher Education Funding Council for England) (2000) *Review of research. Report 00/37* Bristol: HEFCE Available at: www.hefce.ac.uk/pubs/hefce/2000/00_37.htm
- Hoddinott, J and Wuetherick, B (2006) The teaching-research nexus, *Education Canada* 46(1), 32-35
- Jenkins, A, Breen, R, and Lindsay, R with Brew, A (2003) *Re-shaping higher education: Linking teaching and research*. London: RoutledgeFalmer
- Lucas, L (2006) *The research game in academic life*. Maidenhead: SRHE/Open University Press
- McNay, I (1999) The paradoxes of research assessment and funding. In M Henkel and B Little (eds), *Changing relations between higher education and the state*. London: Jessica Kingsley. pp.191–203
- QAA (2000) *Benchmark statement for English*. Gloucester: QAA www.qaa.ac.uk/academicinfrastructure/benchmark/honours/english.pdf
- Rowland, S (2007) *The integrity of academic enquiry*, paper presented to International Policies and Practices for Academic Enquiry: an International Colloquium held at Marwell Conference Centre, Winchester, UK, 19–21 April
- Woodhouse, D (1998) Auditing research and the research/teaching nexus. *New Zealand Journal of Educational Studies*, 33(1), 39–53
- Woodhouse, D (2001) The teaching-research nexus: lessons from New Zealand audits, presentation at the VC Symposium: the teaching–research nexus: enhancing the links, University of Wollongong, 3 October. Available at: cedir.uow.edu.au/nexus/dwoodhse.html
- Zubrick, A, Reid, I and Rossiter, P (2001) *Strengthening the nexus between teaching and research*. Department of Employment, Training and Youth Affairs, Australian Government Publishing Service: Canberra www.dest.gov.au/archive/highered/eippubs/eip01_2/01_2.pdf