Excellent education in research-rich universities: new directions?

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Overview

1. ‘Good’ education: a starting place
2. Evidence for research-based education
3. Current developments in the sector
4. Enablers of change
5. Conclusions and discussion
Research equals education

There is no contradiction between the imperative of good teaching and the imperative of research which critiques, refines, discards and advances human knowledge and understanding.

(McAleese 2013,13)
‘Good’ education: a philosophical framing

Drawing on philosophical hermeneutics, education may be defined as:

• ‘self-formation’ and collective advancement through critical dialogue
• the widening of horizons

(Gadamer, 2004)

Education is underpinned by the need for the human mind to remain ‘unsatisfied with what it imagines it knows’ (Fairfield 2010, 3).
What is education *for*?

Education is ‘for the global common good’, embodying a ‘shared responsibility for a sustainable future’

(UNESCO 2011, 9)
Increasing evidence through empirical studies that students learn more effectively through active, enquiry-based learning as long as it is structured with peer collaboration and dialogic feedback.

See, for example, Blessinger and Carfora eds. 2014; Wood 2010; Spronken-Smith and Walker 2010; Levy and Petrulis 2012.
Education research in the sciences
(Wieman and Gilbert 2015)

Wieman and Gilbert note three common components to the scientific disciplines:

• a large amount of specialized knowledge
• a specific mental organizational framework, unique to the field of expertise
• monitoring one’s own thinking and learning in the field of expertise.

Emphasis on importance of being able to apply knowledge to problem solving and the need for ‘deliberate practice’, defined as ‘a common process required for developing expertise’.
Comparing traditional teaching with enquiry-based learning (Wieman and Gilbert 2015)

Comparative experiment: students who had to engage in interactive, research-based methods and received feedback from fellow students and their instructor were later tested in a quiz designed to ‘probe the mastery of the learning objectives’ (155).

Students engaging in active enquiry outperformed the other, traditionally taught student cohort significantly, across the entire distribution.
Excellent education in research-rich universities
(Fung, Besters-Dilger and van der Vaart, 2017)

‘[B]eing part of a research-rich culture benefits students by providing them with a range of approaches to knowledge and knowledge production. These relate to the learning that occurs when undertaking the specific academic, cultural and professional practices of particular disciplines and/or of thematic interdisciplinary investigations.

Benefits for students also arise from the intellectual depth associated with engaging in any cutting edge investigations, and from the range of skills associated with independent and collaborative enquiry.’ (5)
An important note: disciplinary variations

No one definition of ‘research’ in the phrase ‘research-based education’: there are disciplinary variations in practices and principles associated with research and enquiry in different disciplines.

Variations can be a great catalyst for rich learning within and across disciplinary contexts.

Research is ‘advancing the frontiers of knowledge’ (Nurse 2015, 11)
This traditional model of the relationship between teaching and research needs to be replaced with a more inclusive notion of scholarly knowledge-building communities

(Brew 2006, 18)
Teaching-led research (Harland 2016)

Tony Harland, Professor of Ecology (University of Otago, New Zealand), is developing conception of ‘teaching-led research’.

Lecturers ‘construct courses that directly and positively influence their research, while at the same time, safeguard and enhance the student experience’ (Harland 2016, 461).

Harland argues that teaching can be undertaken with a ‘clear understanding that it enhances research’ and that a ‘research-pedagogy across the research-led higher education sector might be an attractive way for academics to go about their work, a caveat being that it must benefit both student and teacher’ (461).
Examples of changing practice in Europe

Université Pierre et Marie Curie (UPMC): Guided research workshops strengthen the nexus between research and teaching. Compulsory first year workshops focus on “peer project” teaching methods, encouraging autonomy. Each workshop concerns two fields: students work in small groups to master a scientific topic and work through research-thinking processes to produce results.

University of Edinburgh: “Our changing world” is an interdisciplinary first-year course about global challenges, aiming at raising awareness how research and scholarship meet these challenges. Students are expected to address key global issues across disciplines.

KU Leuven: Service-learning opportunities created for students, who serve a ‘real world’ community, mobilising their academic knowledge, skills and attitudes.

(Fung et al. 2017)
The Connected Curriculum initiative at University College London
Commitment

At University College London, our top strategic priority for the next 20 years is to close the divide between teaching and research. We want to integrate research into every stage of an undergraduate degree, moving from research-led to research-based teaching.”

(Michael Arthur, President and Provost, UCL, 30 April 2014)
A core part of 20 year strategy: *UCL 2034*

Principal themes:

1. **Academic leadership** grounded in intellectual excellence
2. **A global leader in the integration of research and education**, underpinning an inspirational student experience
3. **Addressing global challenges** through our disciplinary excellence and distinctive cross-disciplinary approach
4. **An accessible, publicly-engaged organisation** that fosters a lifelong community
5. **London’s Global University**: in London, of London and for London
6. **Delivering global impact** through a network of innovative international activities, collaborations and partnerships
The Connected Curriculum Framework

The core principle: learning through research and enquiry

• What *is* research in our subject(s)? What principles, practices and values underpin our research?
• In what ways, and when, are our students already engaging in forms of enquiry and/or their own investigative research?
• Do our approaches to student assessment promote authentic enquiry?
Connecting with research and researchers

- Are students introduced to and inspired by the latest research in the field, including that undertaken by the department?
- Do their courses and the wider activities and events in their department enable them to meet, learn from and even challenge researchers and scholars?
Practical examples: Connecting with Researchers

During induction week 145 first-year UG students in Brain Sciences view a selection of videos with academics discussing their research, identify someone to interview, & present findings in seminar group.

Meet Your Researcher template available at https://www.ucl.ac.uk/teaching-learning/connected-curriculum/Meet_your_researcher
A ‘throughline’ as part of programme design

• Is there a connective storyline of enquiry, e.g. in the pattern of learning/research activities and assessments, which helps students to build their own coherent learning narrative?

• Is there a clearly constructed sequence of enquiry-based activities across the years of study that enables students to go beyond accumulating knowledge and develop themselves reflectively as critical, creative people?
UCL Institute of Archaeology programme overview: ‘throughlines’ of a) research and b) global citizenship
Showcase portfolio

- Programme-wide
- Curated
- Can include an analytical ‘wrapper’

University of Sydney (health professions)

Portfolios start simply and build in complexity as students’ experience and confidence grows.

Towards the end of their programme, they have almost 100 entries from which to curate a showcase portfolio evidencing their level of expertise across the domains required for professional accreditation.
Outward looking, interdisciplinary connections

- Can students connect outwards from their immediate subject(s) of study and learn to tackle multi-layered challenges using different ‘knowledge lenses’?
- In doing this, can they build understandings of and links with appropriate external communities and organisations?
- Are they encouraged to analyse their ethical bearings through developing research integrity, social responsibility and global citizenship?
Interdisciplinarity

At the UCL Bartlett School of Architecture, students from different disciplines collaborate, using London as a research laboratory.
Workplace connections

• Are students developing a range of professional attributes, such as leadership, project management, creativity, communication and problem-solving skills?

• Can students make and articulate conceptual and practical connections between their academic learning and the lifelong learning needed for employment and for their future lives?
Workplace connections

UCL Bachelor of Arts and Sciences students have opportunity for an internship, supported by series of events and a weekly digest.

Assessment is via a video blog.
Students as producers: outward-facing assessments

• Are some assessments of student learning outward facing, directed at an identified audience, giving students a voice beyond the class?

• Can students demonstrate an ability to use a range of digital media effectively, as well as different modes of writing, visual and oral communication, as they express their insights and arguments to others, both within and beyond the institution?
Outward-facing assessments

At UCL, students in Museum Studies develop a public engagement series and digital resources.

Other assessment modes include grant bids, articles for specific journals, film documentaries, blogs, posters for conferences…
Human connections

- Are students explicitly invited into an inclusive research and learning community?
- Are there opportunities for them to meet, mentor and work collaboratively with their fellow students across year groups?
- Are alumni actively engaged in the learning and research community, e.g. by enriching the curriculum with their expertise, contributing to mentoring schemes or working with departments to enhance their educational provision?
Personal and cross-phase connections

Second year Chemistry students make videos explaining concepts they found difficult to first year students.

Other examples include peer mentoring, peer study groups (timetabled but not roomed), alumni mentoring, UG/PG research seminars/conference, shadowing...
Connected Curriculum framework

01 Students connect with researchers and with the institution’s research

02 A throughline of research activity is built into each program

03 Students make connections across subjects and out to the world

04 Students connect academic learning with workplace learning

05 Students learn to produce outputs – assessments directed at an audience

06 Students connect with each other, across phases and with alumni
### 4. Enablers of change

**UCL ChangeMakers: students as leaders and agents of change**

Co-creation to enhance the student learning experience.

Students and staff work in partnership with each other on education enhancement projects.

Projects involve teams of students partnering up with faculty members to investigate an educational issue and make improvements or to pilot a change and evaluate it.

[http://www.ucl.ac.uk/changemakers](http://www.ucl.ac.uk/changemakers)
• Exchange seminars
• Professional qualifications in teaching and educational leadership
• Events which connect students, teachers, researchers and professionals

https://www.ucl.ac.uk/teaching-learning/arena

UCL Arena: a space for academic and professional staff to share ideas and develop new practices
Rewarding educators and education leaders
(Fung and Gordon 2016)

If we break down some of the structural and conceptual divides between research and education, we can
• develop distinctive new forms of research-based education
• and move towards achieving ‘parity of esteem’ for educators and researchers.
5. Conclusions

Pushing the edges of knowledge

Good education is about ‘widening students’ knowledge horizons and increasing their grasp of disciplinary depths, boundaries and bridges’. Fung (2017, 45)

Can curriculum design in your department be developed further to enable students to engage actively with research and enquiry, throughout the programme?
Excellent education in research-rich universities: curriculum design?

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Your questions and ideas?

**Brew, Angela (2006)** *Research and Teaching: Beyond the Divide* Basingstoke: Palgrave Macmillan


Fung, Dilly and Gordon, Claire (2016) Rewarding educators and education leaders in research-intensive universities
https://www.heacademy.ac.uk/sites/default/files/rewarding_educators_and_education_leaders.pdf


