A Connected Curriculum for Higher Education

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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)
What is education *for*?

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

(UNESCO 2011, 9)
‘[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.

(Fung, Besters-Dilger and van der Vaart, 2017)
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)
Examples of changing practice in Engineering

‘The second anticipated trend is a move towards socially-relevant and outward-facing engineering curricula. Such curricula emphasize student choice, multidisciplinary learning and societal impact, coupled with a breadth of student experience outside the classroom, outside traditional engineering disciplines and across the world ... In contrast to the ‘current leaders’, many institutions identified as ‘emerging leaders’ in engineering education typically deliver distinctive, student-centered curricular experiences within an integrated and unified educational approach’.

(Graham 2018, iii)
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)
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

Biomedical Engineering students have 5 ‘scenario weeks’ every year. In one scenario, students present a business proposal portfolio for a UCL Biomedical Engineering solution to a panel of experts. The solutions are real research by UCL Biomedical Engineering academic staff. Teams receive 30 minutes’ consultation each day with a teaching assistant. Each team presents a 5 minute pitch, followed by 5 minutes of questions.

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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’s Integrated Engineering Programme
A sequence of enquiry-based activities (from Graham 2018, 18).

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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?
‘How to Change the World’ is a two-week scenario for second year engineering undergraduates that emphasises engineering’s potential as a vehicle for positive world change. In 2017 it involved over 200 students from 11 departments, and 24 external partners.

For more information visit: https://bit.ly/2q3sF9j
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?
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?
The PhD: ‘a paranoid genre’? (Germano 2015, 14)
Outward-facing assessments

IPAC (Individual Peer Assessed Contribution) project
- Students trained to give constructive criticism, meaningful, professional feedback
- Interact with a different level of expertise
- Communicate across different roles – clients, experts, peers.

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Outward-facing assessments

Key challenge:

How can the university develop institutional capacity to enable the development of external-facing assessments as a core element of its educational programme?
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

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

Learning through research & inquiry
References


