Curriculum 2021 Introductory Workshop: Research Connected Teaching

Ceri Coulby

Senior Educational Developer, CIE

Centre for Innovation in Education
cie@liverpool.ac.uk

UNIVERSITY OF LIVERPOOL

Learning Outcomes

At the end of the introductory session participants will be able to:

- Express the purpose and nature of research connected teaching and be able to translate its significance for course design to their respective educational disciplinary contexts.
- Communicate the significance of research connected teaching as a course design principle to peers within their subject area.

UNIVERSITY OF LIVERPOOL

Why practice Research Connected Teaching?

- Increased student engagement and motivation in their learning (Fung, 2017, Lopatto, 2004, Blumenfeld, 1991)
- Development of students self efficacy and self directed learning skills (Prince, 2004, Hunter et al. 2007)
- Provide students with transferable, employability skills (Brew 2006; Jenkins & Healey, 2009; Kahn & O'Rourke 2004)
- Development of students critical thinking skills (Brookfield, 2005, Sadler et al, 2010)
- Development of students confidence (Bauer & Bennett, 2003).
- Foster curiosity and inspire the next generation of researchers
- Disseminate new developments in research

UNIVERSITY OF LIVERPOOL

Why practice Research Connected Teaching?

- To bridge the gap between teaching and research in Universities (Brew 2006)

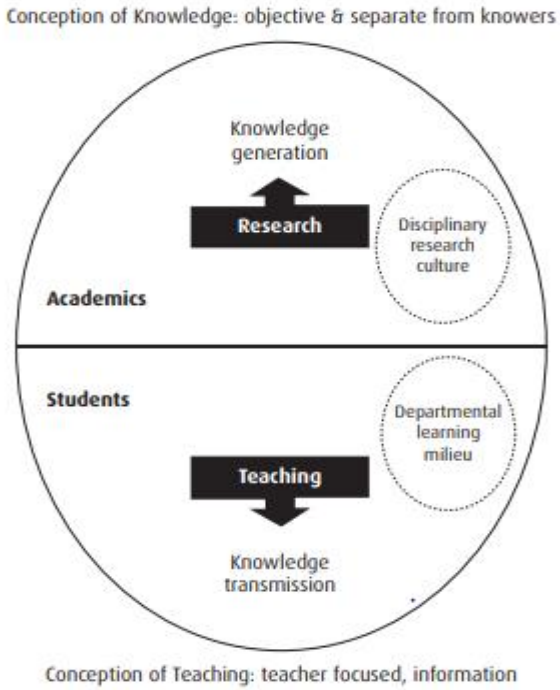


Fig. 2.1 Traditional model of the relationship between teaching and research (Brew 2006, 18)

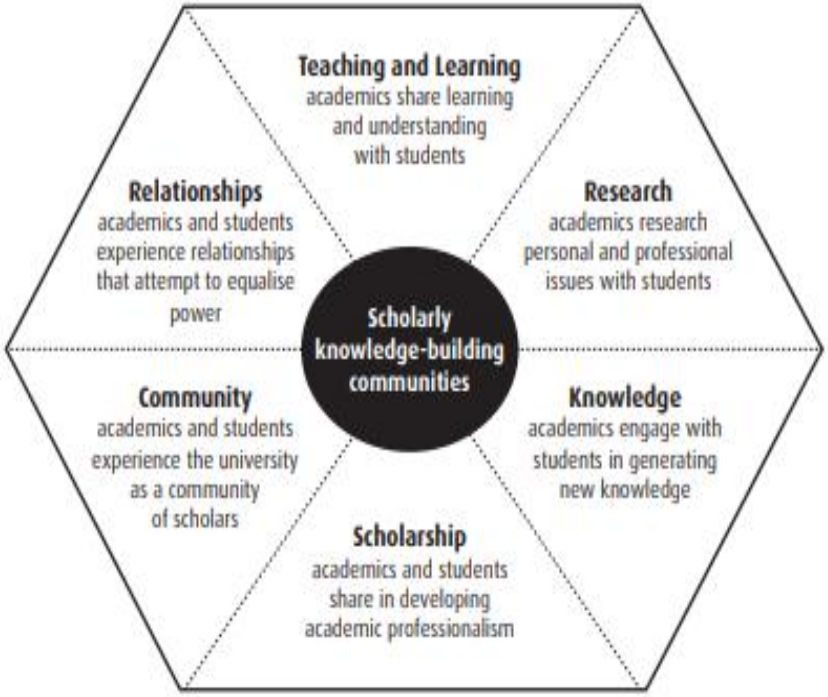


Fig. 2.2 New model of the relationship between teaching and research. (Adapted from Brew 2006, 32)

UNIVERSITY OF LIVERPOOL

What is Research Connected Teaching? UoL Definition

"Research- connected teaching feeds current and cutting-edge research findings into the syllabus; progressively builds students' critical understanding of the nature of research and enquiry, both in disciplinary and generic contexts; and develops students' practical research skills through engaging them in enquiry and other forms of disciplinary and interdisciplinary research activities. Research-connected teaching develops students as producers and not just consumers of knowledge as they are involved in fieldwork, compositions, performances, experiments, enquiry-based project work, etc."

Activity

In your current context, what sort of research connected teaching, learning and assessment activities do your students engage with?

UNIVERSITY OF LIVERPOOL

Activity

Can you now please group your current practices under the following four themes

feeds current and cutting-edge research findings into the syllabus

progressively builds students' critical understanding of the nature of research and enquiry

develops students' practical research skills

develops students as producers and not just consumers of knowledge

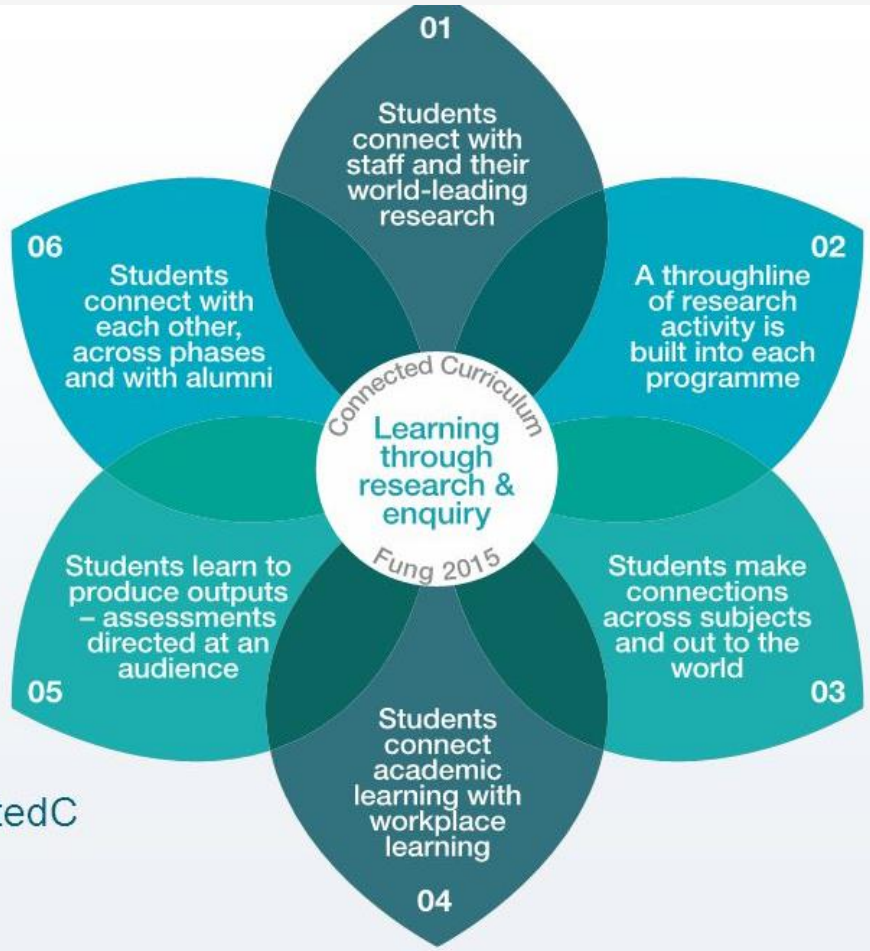
UNIVERSITY OF LIVERPOOL

Which area/areas were more difficult to map to?

UNIVERSITY OF LIVERPOOL

The Connected Curriculum Framework

(Fung, 2015)



@UCLConnectedC

Connected Curriculum

UNIVERSITY OF LIVERPOOL

UoL RCT definition:

- *feeds current and cutting-edge research findings into the syllabus*

Fung (2017):

- Students connect with staff and their world-leading research

How?

- Staff CPD vital- must keep up to date with new developments in the field
- Departmental research sharing events for staff
- Departmental/ Institute wide seminar programme accessible to students
- Meet the researchers events, programme of research speakers for UG students developed as part of core curriculum provision
- Regular (annual?) review of module content, reading lists, supporting materials to ensure up to date research ideas being incorporated (programme level overview?)
- Discussion and critique of research (either face to face or online) incorporated into learning, teaching and assessment tasks

UNIVERSITY OF LIVERPOOL

UoL RCT Definition:

- *progressively builds students' critical understanding of the nature of research and enquiry*

Fung (2017):

- Students connect academic learning with workplace learning
- Students make connections across subjects and out to the world

How?

- Develop or review programmes considering how students research knowledge and skills are built on throughout the duration of the programme

Early on:

- Introduce students to what constitutes research in your discipline- underpinning research paradigms and different types of research
- Provide teaching and learning activities that promote students' ability to understand the components of "good" research in your area, how to recognise it, what questions they should ask when critiquing research and get them to practice this skill!
- Provide facilitated opportunities for discussion of research papers either in class or online
- Provide teaching and learning activities on underpinning research skills within your discipline (e.g. literature searching, ethical considerations, statistical modelling etc.) and writing conventions- provide lots of formative feedback

Later:

- Encourage students to generate their own questions and undertake their own enquiries, initially through short, specific tasks graduating on to more open ended project work, culminating in self directed research or enquiry based projects (which may or may not be synoptic)
- Use teaching, learning and assessment activities (where appropriate) to demonstrate the impact of research generated, its application and where appropriate the wider impact it has across disciplines, nationally, globally and within policy and practice
- Introduce students to collaborative disciplinary and interdisciplinary research and enquiry networks across the UK and internationally

- *develops students' practical research skills*

C2021 Principle: All programmes include applied enquiry-led learning in at least one required module each year (UG only).

Fung (2017):

- A throughline of research activity is built into each programme
- Students connect with each other, across phases and with alumni

How?

- Use approaches such as flipped classroom, problem based/case based/ team based learning in your teaching so that students undertake research and enquiry activity to prepare for sessions
- Specifically provide taught underpinning research skills workshops/ sessions within your core curriculum offering and set formative assessment tasks to help students prepare for later summative assessments
- Use project based assessment, group based enquiry tasks where possible
- Work with industry professionals to set (and grade?) real world project briefs for students
- Set interdisciplinary challenges for students to collaborate on through partnering with another discipline either within the University or externally

- *develops students as producers and not just consumers of knowledge*

C2021 Principle: All students undertake a capstone research- or enquiry-based project, which may be synoptic (allowing them to draw on a wide range of elements from the modules they have taken)

Fung, 2017:

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

How?

- Use a capstone research or enquiry based project as part of your programme assessment strategy.
- Assess the project in ways relevant to your discipline; this could be through a written assignment structured as if the paper were being submitted to a peer reviewed journal, through development of a resource or object, through presentation or poster, model, blog, video, website etc.
- Encourage students to present their work either at Departmental or Faculty wide research dissemination events
- Encourage students to publish their work where appropriate
- Develop student placements/ collaborations with University or industry placed researchers

Consolidating RCT in curricula

How can we ensure RCT is embedded in our programme design and ethos?

Learning Outcomes

When designing a learning outcome can you phrase it so that it requires students to actively seek out and critique information to answer it?

Assessment activities

Can you assess the learning outcomes you have set using a research or enquiry based project to add value to the disciplinary learning outcomes?

Learning and teaching activities

When developing a teaching session instead of providing information for students can you consider 'flipping' the classroom so the students research the subject and you critique it together in class?

Can you set students a project based activity as part of their learning activities?

UNIVERSITY OF LIVERPOOL

Looking back Exercise…

Looking back at your own context are there any ideas shared here that could improve your own provision?

What one thing will you investigate further when you leave here today?

Useful resources

UoL Research Connected Teaching (RCT) Case Studies- CIE website

https://www.liverpool.ac.uk/centre-for-innovation-in-education/curriculum-resources/research-connected-teaching/

Curriculum 2021 Programme Self Evaluation Questions (PSEQ) and Self Assessment Rubric- RCT section (see handouts/ link)
https://www.liverpool.ac.uk/media/intranet/centre-for-innovation-in-education/documents/PSEQ-Oct-2018.docx

Fung (2017) A Connected Curriculum for Higher Education

http://discovery.ucl.ac.uk/1558776/1/A-Connected-Curriculum-for-Higher-Education.pdf

Links to other Hallmarks and Attributes

Active Learning

Students discussion of research, completing research activities and projects is active in nature, learning through participation (Sfard, 1998)

Authentic Assessment

Producing research reports in an academic format similar to that of a peer reviewed journal article, or developed into a blog post in a lay summary or conveying findings to an audience is a relevant disciplinary format is authentic assessment

Confidence

Students report that their academic and personal confidence increases as a result of research based learning and it provides them with key employability skills (Hunter et al, 2007, Fung, 2017)

Digital Fluency

Students use their digital skills to search for and critique information to support their own research or that of others, findings may be presented in a variety of multimedia formats

Global Citizenship

Students become part of a widely dispersed research community, take part in disciplinary discussions in communities of practice, access research from around the world and are taught using research from a variety of international, global and cultural perspectives, they may undertake research in collaboration with others from differing backgrounds and in different locations . Students may work on real world research projects designed to promote social justice and inequalities and bring about change in the world.

Curriculum 2021 hallmarks and attributes staff networks

Purpose:

- Share best practice & expertise.
- Innovate and solve problems collaboratively.
- Collaborate on ideas and projects.
- Invite in external experts.

Curriculum 2021 hallmarks and attributes staff networks

Proposed structure:

- Network for each of the 3 hallmarks and 3 attributes.
- Open to all staff to join single or all networks.
- CIE to facilitate, but open to staff to suggest areas of focus and discussion.
- One physical meeting per semester.
- Digital technologies to support – initially email Listserv.
- Annual showcase event.

UNIVERSITY OF LIVERPOOL

References

Bauer, K. W., & Bennett, J. S. (2003). Alumni perceptions used to assess undergraduate research experience. *The Journal of Higher Education*, 74(2), 210 – 230.

Blumenfeld, P. C., Soloway, E., Marx, R. W., Krajcik, J. S., Guzdial, M., & Palincsar, A. (1991). Motivating project-based learning: Sustaining the doing, supporting the learning. *Educational psychologist*, *26*(3-4), 369-398.

Brew, A. 2006. *Research and Teaching: Beyond the Divide*. London: Palgrave Macmillan.

Brookfield, S. (2005). *The power of critical theory for adult learning and teaching* (pp. 365-8). Maidenhead: Open University Press.

Hunter, A. B., Laursen, S. L., & Seymour, E. (2007). Becoming a scientist: The role of undergraduate research in students' cognitive, personal, and professional development. *Science education*, *91*(1), 36-74.

Jenkins, A., & Healey, M. (2009). Developing the student as a researcher through the curriculum. *Innovations in practice*, *2*(1), 3-15.

Kahn, P., & O'Rourke, K. (2004). Guide to curriculum design: Enquiry-based learning. *Higher Education Academy*, *30*(3).

Lopatto, D. (2004a). Survey of Undergraduate Research Experiences (SURE): First findings. *Cell Biology Education*, 3, 270 – 277.

Prince, M. (2004). Does active learning work? A review of the research. *Journal of engineering education*, *93*(3), 223-231.

Sadler, T. D., Burgin, S., McKinney, L., & Ponjuan, L. (2010). Learning science through research apprenticeships: A critical review of the literature. *Journal of Research in Science Teaching: The Official Journal of the National Association for Research in Science Teaching*, *47*(3), 235-256.

Sfard, A. (1998). On two metaphors for learning and the dangers of choosing just one. *Educational researcher*, *27*(2), 4-13.