Engaging Students in Research and Inquiry

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“We need to encourage universities and colleges to explore new models of curriculum. ... There are several models that we might explore. They should all: ... Incorporate research-based study for undergraduates”

(Paul Ramsden, 2008)
Brief biography

• HE Consultant and Researcher and Emeritus Professor University of Gloucestershire (UoG), UK; Visiting Professor University College London; Adjunct Professor Macquarie University, Australia; International Teaching Fellow University College Cork

• Economic geographer and previously Director Centre for Active Learning UoG

• Director HE Academy projects on ‘Undergraduate research’ and ‘Rethinking final year projects and dissertations’

• Ex-VP for Europe International Society for Scholarship of Teaching and Learning

• National Teaching Fellow and Principal Fellow HE Academy


• Advisor to Australian Learning and Teaching Council / Office of Learning and Teaching Projects on the ‘Teaching-research nexus’ (2006-08), ‘Undergraduate research’ (2009-10); ‘Teaching research’ (2011-13 ); and ‘Capstone curriculum across disciplines’ (2013-14)

• Advisor to League of European Research Universities (2009)

• Advisor to EU Bologna and HE Reform Experts on research-based education (2012)

• International advisor to McMaster University, Canada

• Research interests: linking research and teaching; scholarship of teaching; active learning; developing an inclusive curriculum; students as change agents and as partners
TU4 Dublin Research and Teaching Links

A core remit of this Foundation Theme is to **broaden the scope of the research portfolio than is currently offered by traditional universities** … **Linking research to teaching** will realise an important aspect of the mission of Technological University for Dublin to innovate ‘by **being practice-led** so as to provide changing opportunities for students of the university on campus, on-line, and in the communities we serve’, as well as acknowledging that one practice informs the other. A significant outcome of this Foundation Theme will raise levels of consciousness and acceptance among all members of the academic community that research, innovation and knowledge exchange are mutually inclusive and mainstream activities necessary to grow further and enrich the socio-economic, cultural, and scientific contribution to be made by the technological university to society.

**Source:** [http://www.tu4dublin.ie/foundation-themes](http://www.tu4dublin.ie/foundation-themes)
Developing scholarship in College Based Higher Education sector

Student Experience
- Understanding research methods (research-oriented)
- Undertaking a research project (research-based)

Teacher Experience
- Separate research and teaching
- Teaching from a research base (research-led)

Emerging Spaces: Collaborative projects
Research-Informed Teaching
Wider notions of scholarship

Enhanced Learning Experience

Does an effective HE teacher have to be an active researcher?
Spot the College

Which of the following do you think refer to practices in a) CBHE; and b) universities?

1. Biotechnology students work as part of a research team
2. Psychology students research students’ quality of life
3. Engaging students in applied research through a community sports development consultancy project
4. Student-led research journal in business
5. Using undergraduates to evaluate student experiences of teaching and learning
6. How research will change engineering artefacts
7. Engaging students with the latest research and publications
Spot the College

1. Biotechnology students work as part of a research team – Massachusetts Bay Community College
2. Psychology students research students’ quality of life – York St John University
3. Engaging students in applied research through a community sports development consultancy project - University of Central Lancashire
4. Student-led research journal in business – Newcastle College
5. Using undergraduates to evaluate student experiences of teaching and learning – Warwick University
6. How research will change engineering artefacts – Imperial College London
7. Engaging students with the latest research and publications - Adam Smith College and Dundee College
Our argument: a ‘research active curriculum’

“All undergraduate students in all higher education institutions should experience learning through, and about, research and inquiry. … We argue, as does much recent US experience, that such curricular experience should and can be mainstreamed for all or many students through a research-active curriculum. We argue that this can be achieved through structured interventions at course team, departmental, institutional and national levels” (Healey and Jenkins, 2009, 3).
Engaging students in research and inquiry

“For the students who are the professionals of the future, developing the ability to investigate problems, make judgments on the basis of sound evidence, take decisions on a rational basis, and understand what they are doing and why is vital. Research and inquiry is not just for those who choose to pursue an academic career. It is central to professional life in the twenty-first century.”

Brew (2007, 7)
Engaging students in research and inquiry

“Developing the Student as Scholar Model requires a fundamental shift in how we structure and imagine the whole undergraduate experience. It requires, as a minimum, the adoption of the Learning Paradigm in everything from the first introductory course through the final capstone experience. It requires a culture of inquiry-based learning infused throughout the entire liberal arts curriculum that starts with the very first day of college and is reinforced in every classroom and program.”

(Hodge et al. 2007, 1)
“All undergraduate students in CBHE institutions should experience learning through, and about, research and inquiry.”
“To enhance the quality of learning in CBHE it is more important to focus on engaging students in research and inquiry than raising the research expertise of staff.”
Engaging students in research and inquiry

1. Different ways of engaging students
2. Strategies for engaging students at the beginning of their course
3. Strategies for engaging students at the end of their course
4. Strategies for engaging students throughout their course
5. Action planning
Students as partners in learning and teaching in higher education

Source: Healey, Flint and Harrington (2014, 25)
Students are participants

Emphasis on research content

- Research-tutored
  - Engaging in research discussions
- Research-led
  - Learning about current research in the discipline

Emphasis on research processes and problems

- Research-based
  - Undertaking research and inquiry
- Research-oriented
  - Developing research and inquiry skills and techniques

Students frequently are an audience

Curriculum design and the research-teaching nexus

(based on Healey, 2005, 70)
Mainstreaming undergraduate research and inquiry

In pairs, each skim read at least ONE strategy for engaging students with research (1.1 - 1.4 pp 2-6)

Discuss whether and how any of the ideas may be amended for application in your context

5 minutes
Inquiry-based learning: a conceptual framework

EXPLORING AND ACQUIRING EXISTING KNOWLEDGE

Pursuing (information-active)

Identifying (information-responsive)

STUDENT-LED

Authoring (discovery-active)

Producing (discovery-responsive)

STAFF-LED

PARTICIPATING IN BUILDING KNOWLEDGE

Based on Levy, 2009
High Impact Activities

- First-Year Seminars and Experiences
- Common Intellectual Experiences
- Learning Communities
- Writing-Intensive Courses
- Collaborative Assignments and Projects
- “Science as Science Is Done”; Undergraduate Research
- Diversity/Global Learning
- Service Learning, Community-Based Learning
- Internships
- Capstone Courses and Projects

Source: Kuh, 2008
Strategies for engaging students at the beginning of their courses

In different pairs, each skim read at least ONE different year one case study (3.2 – 3.9 pp 7-9).

Discuss whether and how any of the ideas may be amended for application in your contexts.

5 minutes
Developing and enhancing undergraduate final-year projects and dissertations

A National Teaching Fellowship Scheme project publication

Mick Healey, Laura Lannin, Arran Stibbe and James Derounian
July 2013

http://www.heacademy.ac.uk/projects/detail/ntfs/ntfsproject_Gloucestershire10
Strategies for engaging students in final year and capstone courses

In a different pair, each skim read at least ONE different final year and capstone case study (4.1 – 4.11 pp 9-12). Discuss whether and how any of the ideas may be amended for application in your contexts.

5 minutes
Dimensions of final year projects and dissertations

Additional to honours project
Campus based
Undertaken at the University
Research preparation
Student learning centred
Discipline based
Student initiated
Individual
Original to the student
University audience
In-depth analysis
Assessed by academics
Individual supervision

Alternative to honours project
Employer / community based
Distance learning
Professional / employment preparation
Outcome product centred
Multi- or interdisciplinary
Teacher / supervisor initiated
Group
Original to the discipline
Professional / public audience
Synthesis of knowledge/skills
Assessed by peers / professionals
Group / peer supervisions
The developmental journey of the student

University curricula need to support student and citizen development from

“absolute knowing [where] students view knowledge as certain; their role is to obtain it from authorities … (to) contextual knowing [where] students believe that knowledge is constructed in a context based on judgement of evidence; their role is to exchange and compare perspectives, think through problems, and integrate and apply knowledge” (Baxter Magolda, 1992, 75).
# The developmental journey of the student

| Developmental Level                          | Student traits                                                                 |
|---------------------------------------------|--------------------------------------------------------------------------------|---|
| Reliance on external references [Foundations] | Knowledge viewed as certain
Reliance on authorities as source of knowledge
Externally defined value system and identity |---|
| At the crossroads [Intermediate Learning]   | Evolving awareness of multiple perspectives and uncertainty
Evolving awareness of own values and identity and of limitations of dependent relationships |---|
| Self-authorship [Capstone]                  | Awareness of knowledge as contextual
Development of internal belief system and sense of self capacity to engage in authentic, interdependent relationships |---|

Source: Hodge *et al.* (2008)
Engaging students throughout their course

In pairs each skim read the abstracts for ONE different course team, departmental and institutional case study to embed research and inquiry (2.1-5.12 pp.15-18).

Discuss whether any of the ideas may be amended for application in your context 5 minutes
Modes of IBL

- Importance of scaffolding provided by lecturer and development of independence in learner
- **Structured** – where lecturers provide an issue or problem and an outline for addressing it
- **Guided** – where lecturers provide questions to stimulate inquiry but students are self-directed in terms of exploring these questions
- **Open** – where students formulate the questions themselves as well as going through the full inquiry cycle

(after Staver and Bay, 1987)
Scaffolding inquiry throughout a degree

1st year

2nd year

3rd year

Focus of learning

Level of independence

Discovery-oriented

Information-oriented

1st year

2nd year

3rd year

Structured

Guided

Open
C. Action planning

In threes and fours one of you should identify a way in which you propose to engage the students in your programme or institution as partners in professional and community learning, research and inquiry and the others should act as critical friends.

5 minutes
Mainstreaming undergraduate research and inquiry: conclusions

• Getting students to produce knowledge rather than just consume knowledge is a way to re-link teaching and research.

• The challenge is to mainstream undergraduate research so that all students may potentially benefit.

• Adopting a broader definition of undergraduate research than is currently common is a way forward (Boyer et al.), which should benefit the learning of students in institutions with a range of different missions.
Mainstreaming undergraduate research and inquiry: conclusions

If undergraduate research is to be truly integrated into HE then the nature of higher education itself will need to be reconceptualised.

“universities need to move towards creating inclusive scholarly knowledge-building communities. … The notion of inclusive scholarly knowledge-building communities invites us to consider new ideas about who the scholars are in universities and how they might work in partnership.” (Brew, 2007, 4)

There is a need to do more thinking ‘outside the box’