Experiences at the teaching-research interface

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Research and teaching

“In universities, learning should not be [defined] in terms of the passing on of well established knowledge, but always in terms of not yet completely solved problems.”
Wilhelm von Humboldt, 1807
(Thanks to Lewis Elton)

“The true and adequate end of intellectual training and of a university is not learning or acquirement, but rather, is thought or reason exercised upon knowledge”
John H Newman, 1858

Shape of this talk

1 – The Motivations
2 – Background
3 – Findings and Analysis
4 – Conclusions

Common beginnings ...

Scholarship’s four domains

Curriculum design and the research-teaching nexus

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[Teaching is not a] routine function, tacked on, something almost anyone can do. When defined as scholarship, teaching both educates and entices future scholars.”

http://naples.cc.sunysb.edu/Pres/boyer.nsf/

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Scholarship Reconsidered, Boyer 1990
Reinventing Undergraduate Education, A Blueprint for America’s Research Universities, Boyer Commission 2000

Linking research and teaching: disciplinary spaces
Comparing two models

Start with the academic? Scholarship of education

- Research-led
- Scholarship of teaching
- Curriculum Design (Healey)

Start with the student? Curriculum innovation

- Research-oriented
- Scholarship of application
- Student Experience (Boyer)

Adapted from Healey [24]

Adapted from Boyer’s Four Scholarships [7]

Curriculum Design emphasises teaching processes of knowledge construction in the subject

Curriculum structured around teaching current subject content

Processes and problems Curriculum Emphasises students undertaking inquiry-based learning

Curriculum emphasises learning focused on students writing and discussing essays and papers

Research content Research-based

Research-tutored

Scholarship of discovery

Research-led

Scholarship of integration

Scholarship of application

Student as Audience

Students as Participants

More views

“the lecturer, xxx in particular, is able to explore the concepts with clarity and make the content interesting by displaying a genuine passion for the subject”

The colleague concerned commented

“I believe this reflects my deliberate use of research related material/knowledge…”

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Multiple perspectives

Student/ learner

Individual lecturer

Curriculum designer(s)

Classroom practice

Various Stakeholders

- Statutory Bodies
- Government Agencies
- Future Employers
- Professional Bodies

Aims and views...

This course aims to develop critical thinking, effective working within teams, peer-learning and discussion, and individual responsibility as these are transferable skills that are essential within a highly competent technologist, computer scientist, software engineer or researcher

“Artificial Intelligence, for the philosophy of AI part, I give students directed reading, which then forms part of their expected background knowledge for the examination. Sometimes the required reading is classic stuff, like Turing’s 1950 paper in Mind, but sometimes it is up-to-the-minute commentary, and so could be counted as ‘research’”

How do you relate teaching and research?

Is your teaching: research tutored, research led, research oriented, research based?

http://www.unt.edu/sose/essay.htm

Classroom practice

Knowledge, skills and understanding

Domains of learning

- Cognitive (knowledge)
- Affective (attitudes)
- Psychomotor (skills)

Other Considerations

- Student’s journey
- Curriculum map
- Disciplinary demands

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Many found it easier to relate to academics in engineering. Some issues are related to
Disciplinary Differences or Engineer/Scientist tensions. Academics in engineering are not
social scientists. Many found it easier to relate to Boyer’s explanation than to Healey’s.

There is evidence of activities which create a link between research and teaching at each year of study. Some colleagues have difficulties with the concepts. Some issues are related to Disciplinary Differences or Engineer/Scientist tensions. Academics in engineering are not social scientists. Many found it easier to relate to Boyer’s explanation than to Healey’s.

Looking for more data:
- Evidence of current practice
- Academic perspectives
- Student Perspectives
- Educational approaches
  - Technology based
  - Enquiry based
  - Traditional face to face

Want to collaborate?

Sounds like a working group
Thank You

Acknowledgements

Contributions of colleagues at our respective institutions

Questions?

References


Appendix

Research teaching nexus matrix
Mindmap
Survey monkey – to use for online survey
CPhC Learning Development Group

Context and background

Ideas in the ether...

• Nathan - My freshman year
• Wesch - Digital ethnography Kansas State University
• Frand – Information Age Mindset
• Presny – Digital Natives, Digital Immigrants,
• C. Haythornthwaite & M. M. Kazmer (Eds.) Learning, Culture and Community in Online Education: Research and Practice

Digital ethnography
http://mediatedcultures.net/ksudigg/
The Machine is Us/ing Us (Final Version)
http://youtube.com/watch?v=NLlGopyXT_g
Information r/evolution
http://youtube.com/watch?v=-4CV05HyAbM
A vision of students today
http://youtube.com/watch?v=dGCJ46vyR9o&feature=related
The hyperland videos featuring Douglas Adams on YouTube
http://youtube.com/watch?v=rOsPKjbMvxY
Digital natives data
http://www.digitalnative.org/Introduction_to_the_Life_of_Digital_Natives