Linking discipline-based research and teaching to benefit student learning

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Brief Biography

- Economic geographer
- Director Geography Discipline Network (GDN)
- Co-Director Centre for Active Learning in Geography, Environment and Related Disciplines
- Co-Director ESRC TLRP Project on Disabled Students’ Learning
- HE Academy Accreditor and elected member of Council
- Geography Advisor to Academy Subject Centre for Geography, Earth and Environmental Sciences
- VP for Europe International Society for Scholarship of Teaching and Learning
- National Teaching Fellow
- Research interests: scholarship of teaching; linking research and teaching; active learning; developing an inclusive curriculum for disabled students
Linking research and teaching

1. Linking research and teaching
2. Disciplinary perspectives
3. Institutional perspectives
4. Issues in developing R&T nexus
5. Conclusion
Linking research and teaching

“We are all researchers now … Teaching and research are becoming ever more intimately related … In a ‘knowledge society’ all students – certainly all graduates – have to be researchers. Not only are they engaged in the production of knowledge; they must also be educated to cope with the risks and uncertainties generated by the advance of science”

(Scott 2002, 13)

“… universities should treat learning as not yet wholly solved problems and hence always in research mode”

(Humboldt 1810, translated 1970, quoted by Elton 2005, 110)
Linking research and teaching

“It is not teaching but the student experience that should be the focus of the teaching research nexus”

(Prosser, 2006)

"Involving students in inquiry - in research - is a way of improving their learning, motivating them more. After all, what motivates large numbers of academics is engaging in the excitement of research. Bringing research and teaching together is a way of enhancing the motivation of both academics and students"

(Brew, in Jenkins et al, 2003)
Different ways of linking R&T

• Learning about others’ research
• Learning to do research – research methods
• Learning in research mode – enquiry based
• Pedagogic research – enquiring and reflecting on learning
Linking research and teaching: different views

• Topic on linking research and teaching has generated much debate, some of it fairly emotive and polarised (Table 2)
• Many people hold the view that a key characteristic of universities is where research and teaching are brought together
• Some claim that the best researchers are usually the best teachers (e.g. Cooke, 1998)
• Others dispute this claim (e.g. Jenkins, 2000); many refer to examples of excellent researchers who are poor teachers and vice versa
Linking research and teaching: different conceptions of research

<table>
<thead>
<tr>
<th>Research is oriented towards:</th>
<th>Research aims to:</th>
<th>The researcher is present to, or the focus of, awareness</th>
<th>The researcher is absent from, or incidental to, awareness</th>
</tr>
</thead>
<tbody>
<tr>
<td>External products</td>
<td>Produce an outcome</td>
<td>Trading view</td>
<td>Domino view</td>
</tr>
<tr>
<td>Internal processes</td>
<td>Understand</td>
<td>Journey view</td>
<td>Layer view</td>
</tr>
</tbody>
</table>

Fig. 1. Relationships between conceptions of research.

Source: Brew (2003, 6)
Linking research and teaching: different conceptions of teaching

Information transfer / teacher focused approach

Conceptual change / student focused approach

Prosser and Trigwell (1999)
Linking research and teaching: Conceptual compatibilities

Trading view of research and information transmission approach to teaching

Journey view of research and conceptual change approach to teaching

Trowler and Wareham (2007)
STUDENTS AS PARTICIPANTS

STUDENTS AS AUDIENCE

Research-tutored

Research-led

Research-based

Research-oriented

EMPHASIS ON RESEARCH CONTENT

EMPHASIS ON RESEARCH PROCESSES AND PROBLEMS

Curriculum design and the research-teaching nexus
Linking research and teaching: disciplinary perspectives

A discipline-based approach is important in studying the research-teaching nexus because the nature of knowledge construction and research methods differ between disciplines.
Different ways of linking R&T: disciplinary perspectives

A key issue:
How may the linkages between research and teaching be developed to enhance the benefit for student learning?

In pairs each skim read the abstracts for ONE different group of DISCIPLINES pp.8-20 OR some of the DEPARTMENT case studies pp21-25. Discuss whether any of the ideas may be amended for application in your context

5 minutes
Linking research and teaching: disciplinary perspectives

Linking teaching and research through the disciplines
Higher Education Academy Subject Centre projects:
   - Biosciences
   - Geography, Earth and Environmental Sciences
   - Health Sciences and Practice
   - Hospitality, Leisure, Sport and Tourism
   - Law

http://www.brookes.ac.uk/genericlink/

Current HE Academy (SNAS) project covering most of the remaining subject centres
Linking research and teaching: disciplinary perspectives

Variation by discipline group

Subject content – more difficult in ‘hard’ disciplines than ‘soft’

Social processes – working with staff as part of a research team more common in ‘hard’ disciplines than ‘soft’

Role of professional bodies – danger of ‘curriculum creep’ where accredit entry into profession
**Students experience of learning in a research environment: Physics**

<table>
<thead>
<tr>
<th>What is research?</th>
<th>Breaking new ground; moving forward; exploration and discovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>How visible is it?</td>
<td>Laboratories and machinery (ie tools) but often behind closed doors</td>
</tr>
<tr>
<td>Where is it located?</td>
<td>Out there; at a higher level</td>
</tr>
<tr>
<td>Who does it?</td>
<td>Lecturers</td>
</tr>
</tbody>
</table>

Source: Robertson and Blackler (2006)
**Students experience of learning in a research environment: Geography**

<table>
<thead>
<tr>
<th>What is research?</th>
<th>Gathering information in the world; answering a question</th>
</tr>
</thead>
<tbody>
<tr>
<td>How visible is it?</td>
<td>Most visible in the field</td>
</tr>
<tr>
<td>Where is it located?</td>
<td>Out there in the field</td>
</tr>
<tr>
<td>Who does it?</td>
<td>Lecturers and (increasingly over time) students</td>
</tr>
</tbody>
</table>

Source: Robertson and Blackler (2006)
### Students experience of learning in a research environment: English

<table>
<thead>
<tr>
<th>What is research?</th>
<th>Looking into; gathering; putting it together; a focus of interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>How visible is it?</td>
<td>Not tangibly visible but apparent in the dialogue</td>
</tr>
<tr>
<td>Where is it located?</td>
<td>In the library; in the head</td>
</tr>
<tr>
<td>Who does it?</td>
<td>Lecturers and students</td>
</tr>
</tbody>
</table>

Source: Robertson and Blackler (2006)
Linking research and teaching: institutional perspectives

Skim read the abstracts for ONE group of INSTITUTIONS pp25-32

In pairs, discuss whether any of the ideas may be amended for application here

5 minutes

For a framework for analysing institutional strategies see end of handout p45
Linking research and teaching: issues in developing R&T nexus

• How much do your u/g students know about the research which goes on in your department?

• What opportunities are there for students to present / publish / celebrate their research?

• Is research-based learning primarily for honours and graduate students?

• Is research-based learning for all students or a highly selected group?
Students’ perceptions of research

A comparison of over 500 final year students’ perceptions of research in Alberta, Royal Holloway and Gloucestershire found (Table 5):

• Students agreed that being involved in research activities is beneficial
• Students do not perceive the development of their research skills
• Communication is one of the issues that we need to address – language used can exclude
Students’ perceptions of research:

- About three-quarters of the items followed our hypothesis (particularly about the awareness of research)
- Those where the hypothesis did not hold up were mainly in the experiences with doing research, where there were no significant differences
- Regardless of institution, there is the perception amongst students that learning in an inquiry or research-based mode is beneficial
Students’ perceptions of research:

- Trigwell (2007) examined 306 students’ perceptions of their learning benefits from a research-stimulated environment in physics and English in 8 low and high RAE-rated departments.
- He found a strong positive relationship with adopting a deep approach to learning which was independent of discipline and RAE rating.
Linking research and teaching: issues in developing R&T nexus

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Strategies for linking Research and teaching

In groups of twos and threes identify ONE possible strategy or practice that you would like:

EITHER to introduce in your department

OR for the University to implement
Linking research and teaching: Conclusions

• Nature of the linkage between teaching and research is complex and contested
• Adopting a broader definition of 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
Linking research and teaching: Conclusions

Barnett (2003: 157) suggests that there are many pressures that are pulling research and teaching apart:

“The twentieth century saw the university change from a site in which teaching and research stood in a reasonably comfortable relationship with each other to one in which they became mutually antagonistic”.

Putting greater emphasis on actively engaging students with research, suitably adapted to recognise the variation and complexity of constructing knowledge in different disciplines, is one way of re-linking them in the twenty-first century.
If an active learning strategy is to become common place in higher education generally then the nature of higher education itself will need to be reconceptualised so that staff and students work together in what Brew (2003, 12) calls “academic communities of practice”. This she argues:

“means sharing power and it means being open to challenge” (p.16)

There is a need to do more thinking ‘outside the box’. 
Linking research and teaching to benefit student learning

THE END

Thank You