

DISCIPLINARY CASE STUDIES ON TEACHING /RESEARCH LINKS

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<http://www.bioscience.heacademy.ac.uk/projects/ltr/>

STRUCURE AND ALTERNATIVES

These materials are in three parts

- 1) Anonymised case studies –i.e. names of discipline, institution and staff omitted : Use these when you want to focus on the form of learning and when the discipline and the institution may focus staff on what may be incidental ?
- 2) Contextualised case studies with references. Use when the context is important to immediately reveal?
- 3) Bibliography for anonymised case studies

Section 1 : Anonymised case studies

1) Staff-student interview project 1

A final year synoptic module on the nature of discipline thought/practice. Lectures and readings set out the main directions and controversies in the discipline.

Students were divided into groups and each group allocated a member of staff, who gave them a copy of his CV. A student group then interviewed that member of staff (with the rest of the students attending), about their academic history and views on the nature of their contemporary discipline. The student group then wrote up the interview and set that persons' view of the discipline in the wider context of the contemporary discipline.

Same idea -different context

2) Staff-student interview project 2

The department requires all year one students to do an assignment in term one, in which students interview a member of staff about their research. Each first year tutorial group is allocated a member of staff who is not their tutor. Tutorial groups are given by that member of staff three pieces of writing which are representative of their work, their CV and arrange a date for the interview. Before the interview students read their materials and develop an interview schedule etc. On the basis of their reading and the interview, each student individually writes a 1,500 word report on a) the objectives of the interviewee's research; b) how that research relates to their earlier studies; c) how the interviewee's research relates to his or her teaching, other interests and the discipline as a whole.

Similar idea -different context

3) Student research/interview project

A required assignment in a third year synoptic course is an essay which "With regards to a key (discipline specialist), summarise the main features of his/her work, show how this relates to methodology, and develop critiques of this work from one of the methodological perspectives presented in the module". This assignment requires extensive bibliographic work and students may contact the researcher by email to answer specific questions (if they are still alive). They are not allowed to do a study of staff in their department.

4) Introducing the nature of the discipline to 1st year students

Introducing a discipline to 1st Year students has always been a challenge. The desire to cover the basics and to provide a broad foundation to the 'who', the 'what' and the 'why' upon which senior courses will build, does not always sit well alongside the desire to capture their imaginations, teach them critical skills, encourage them to reflect on their own practice and to think for themselves. Add to this the interest that most active researchers have in teaching what they do, and it often seems that something has to give. This presentation will illustrate the way in which a half-semester 1st year course was developed so as to address these issues. It takes a topical and often controversial issue as a means of engaging students with their contemporary discipline. The course was designed to take students on the journey that I, as researcher, had travelled and, in doing so, bring to them some understanding of my discipline, past and present - its history, methodologies and subject matter, and what challenges it currently and potentially addresses. It sought to combine a specific and personalised encounter with the discipline with a more general understanding of its breadth and depth.

5) The digital 'vignette' -bringing research to the classroom

There is a perennial problem in trying to explain the 'real world' while cooped up in a classroom. This is particularly true of techniques which are best explained while outside the classroom. Nevertheless, a basic appreciation of what is involved in applying the techniques must generally be imparted in the classroom before students are let loose to try things out for themselves. This is particularly true where projects are (a) based on a short period outside the classroom and (b) assessed. Under these circumstances, student performance in the project is directly related to how well they have absorbed the classroom 'blurb' that precedes the activity, that is, how rapidly they can get down to doing useful work.

The problem of course, is that such techniques taught in a classroom are not, of themselves, very interesting subject matter. To combat this I use what I've taken to calling 'digital vignettes' - each vignette is on a single 'byte-size' subject and a complete vignette includes (i) fairly amateur digital video shot at a suitable site with explanation, (ii) high resolution digital photos which enable the detail to be shown after the video, (iii) written text regarding the subject of the vignette, and (iv) where appropriate, information/ evidence/samples collected from the same locality as appears in the video and photos. I have found this works very well to maintain student interest and helps in comprehension of complex ideas.

6) Pre-out of classroom activity familiarisation exercises

Teaching outside the classroom is an integral part of education in many disciplines. However,

concerns have been expressed that such activity is can be detached from class-based learning. By requiring students to complete two introductory surveys at the outset of the module -a 'place perception' survey and a place awareness/experience survey -the detachment of such experiences from university-based teaching can be addressed. Most importantly, this has the added benefits of 'personalising' the experience course for each student, preparing them for experience and raising their enthusiasm for, and awareness of, the out of classroom location in advance of the visit.

7) Four examples to promote the synergy

I think there are a number of important links between teaching and research, which emphasise the synergies that each provides to the other. From my own experience I can cite at least four different ways in which teaching and research are linked together. These include writing a textbook. The importance here is that the research subject material has been diverse, highly specialised, sometimes quite technical and written in multiple European languages. The textbook provides for students a synthesis of research into that subject and makes it much more accessible in the limited time they have to study the subject at an undergraduate level.

The second way in which there are synergies between the two is where you teach an undergraduate unit in as comprehensive a way as possible covering all possible aspects of the subject. Of course research has not covered all aspects which therefore helps the lecturer to identify where the main gaps are in the research and literature and provides an incentive for academics to undertake research to fill those gaps..

The third way research and teaching are linked together is where academics write specific research papers that can be used to give greater depth and focus to undergraduate teaching. Students have the opportunity to focus on particular issues guided by their lecturers who have specialised in a particular research area within the broader subject.

And fourthly, with my background, I've found that primary sources I have used in my own research can be applied to undergraduate and of course postgraduate teaching to give greater depth and life and colour. I use my own research papers, and also talk to students about the

whole research process what I have done to investigate a particular topic in more detail. For example if this involves going to archives, how it summarises the literature and uses criticisms of the literature. I think it important to give students an enthusiasm, a sense, a taste of what we do as researchers and what actually happened rather than give received secondary material researched by someone else.

8) Publishing undergraduate research in an extra-curricula house publication

A journal was devised to offer a genuine experience of research publication to students in response to a perceived need as a significant proportion of students go on to further discipline-specific study or research when their degree is completed. Publication does not accrue academic credit. The benefits of publication to the student are considered to be the genuine experience of completing the full research cycle and the end product, a professionally produced article, which student authors can include with their curriculum vitae. Feedback from student authors also indicates that they gain a great deal of personal satisfaction and learn a great deal about scientific writing and the research and publication process.

9) Taking learning outside the classroom

A core module has been designed to introduce students to basic research techniques and research issues using existing research projects and themes in the school and via visits to local research institutions. This concept is underpinned by the high research rating of the school from which the degree is co-ordinated, the availability of on-going research projects and the geographic position of the university which provides access to a number of high quality research institutions relevant to the degree subject. The actual background to activities that a given cohort of students pursue changes as different research projects are completed and new contracts won. This gives a dynamic background to the module which ensures students are being associated with the latest research projects.

10) Teaching research design using real examples

The principle involved in this link between teaching and research, which can be extended to any piece of research work, is to unpick with the students the actual design process which you went through before carrying out the work, or each successive piece of work in a series. This includes the thought processes and, most importantly, where in retrospect the design was poor. The background to the problem is explained along with the real-life constraints which caused a perhaps less than ideal design to be used. The actual outcome (results) are detailed and the lessons learned.

11) Learning the skills of reading research literature

The principle involved in this link between teaching and research, is to provide practice in critically analysing the research literature. In a series of weekly tutorials (6 of 1 hour duration) students are asked to read one paper from the recent primary literature in preparation for the tutorial. The papers selected over the 6 tutorials deal with a broad spectrum of subject matter selected to provide a broad overview of the current research directions in the subject area. All the students in the group (about 6 students) read the same paper. The suggested preparation time for each tutorial is 3 hours. Before tutorials 1, 3 and 5 students are asked to write an

abstract (-250 words) for the paper they have read (the abstract was removed from the version they read prior to the tutorial). For tutorials 2, 4 and 6 the students have to come to the tutorial prepared to discuss in detail any elements of the paper. In discussion with the tutor, students are encouraged to be critical and to try to understand the methods used and conclusions drawn. Marks are awarded for attendance and active participation.

12) Access to research

A long term piece of research at a remote institution is made accessible to students via a dedicated, comprehensive website. Exercises that can be used as part of a course, or for independent learning are being produced.

13) Student organised conference

Level 3 students are in charge of organising their own conference, from developing the programme and themes, choosing a suitable venue and caterer as well as presenting on the day.

Aims:

- Introduce students to future professional activities
 - To gain experience in group work and developing team working skills ..
- To practice different ways of communicating research information
- To work with external subject related professionals
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14) Writing for research users: briefing papers as coursework

A 'Research Briefing Paper' (also known as a Research Briefing or Briefing Paper) is a concise summary of research findings that is written for an informed, although not necessarily an expert, audience. Typically, research briefing papers are presented as a four-page A4-sized pamphlet, printed on A3-sized paper which is folded at its mid-point to form a stapleless seam. Each paper reaches a clear conclusion based on evidence and concise argument. This tends to result in a pace of writing that could best be described as 'swift'. Yet, coherency and substance are the hallmarks of a good research briefing paper: this is no insignificant undertaking for a paper that is less than 2500 words in length!

A second year undergraduate module offers individual students the option of submitting coursework in the form of a briefing paper based on a small-scale research project that they themselves have designed and executed. On completion of the module, students can then elect to have their paper refereed by an independent expert as part of the project. Publication on project website is conditional on an acceptable referee's report.

15) Encouraging students to publish their work

An undergraduate e-journal has been established based upon assessed final year research projects. The e-journal will be used as an example to undergraduates of how research results are disseminated and of the standards required for research careers. A longer term aim is to develop the resource with interested undergraduates taking responsibility for peer review and editing the journal, thus allowing them to develop work-based skills and a deeper understanding of skills required for successful research careers.

16) Linking research and current practice

The teacher offers the students the opportunity to select a subject of his/her choice that is current to the developing practice of the discipline. These topics must be relevant to the discipline, need to be up to date and need to be supported by research evidence. The students will be expected to, select a relevant topic which is verified by the tutor, find and evaluate the relevant research work to support or refute the practice and present the case, in a 15 minute oral presentation to a group of peers, lecturers and external experts. A 5 minutes question time from the floor will follow. The students may present a case to introduce or implement a new idea in the discipline. The presentation is assessed with the assessment marks broken down to 40% for the presentation content and 60% of the work presented in the format for a journal publication. Students are encouraged to publish work presented.

17) Research on a prescribed case study

Building on modules studied at stages 1 and 2, seminars examine the nature of scholarship in their discipline and methods for designing a research project. Working with primary and secondary material arising from a case study each student then:

- devises a project design
- receives formative peer assessment on the project design
- provides formative peer assessment to another student's design

Each student individually carries out their research project and writes an essay and reflective account of the process by which the project was formulated and an assessment of the extent to which the project has met its objectives. Each student is expected to work independently with a high degree of learner autonomy.

In the final phase of the project, students are required to work collaboratively as a team to devise a strategy for disseminating some or all of their research output during the module in a format appropriate for a non-academic audience. The group produces a document explaining the strategy and may annex to it any actual or proposed output (for example a briefing document, letter to the press, draft article for a magazine or newspaper, plans for a website etc).

18) Bringing current research into the classroom

The author sees it as essential that lecturers conduct and bring their research into the classroom to ensure that students gain an understanding of up-to-date and rapidly changing theories. In his programme students and lecturers often work together to discuss the complex issues which revolve around research matters. The author makes a point of working with guest lecturers in his many subjects, particularly in areas of high sensitivity. Discussions and student work feed directly into research publications, including PhD theses which in turn generate a new generation of scholars and teachers. The author attracts internationally renowned researchers to numerous fora where students have direct access to their knowledge and skills. Similarly, numerous conferences and symposia have been organised around the key areas of teaching and research, and students have been invited to participate actively in these events, either as

audience members, presenters or researchers. In contemporary fields of study, research and teaching have to be intimately linked or the material being taught falls rapidly out-of-date.

19) Developing students research skills

Kathie sees developing students' research skills by requiring them to go through archives to find information about particular events, examining these from several disciplinary perspectives.

She uses past and current literature with a set of structured questions to help students to understand:

- how principles work in practice
- how practices have evolved (or not) over time

Kathie encourages student voice in the classroom. In this way she extends her own professional knowledge and that of the students. She believes students do become aware of the different locations in which knowledge is constructed as well as learning to look at issues from multiple perspectives.

20) Development of inquiry based learning

Involving undergraduates in the research process exhorts students to learn by active participation and encourages the development of a sense of a community of researchers. Learning through inquiry places the teacher as 'companion researcher' or guide (Boyer Commission 2000) and facilitates students' ability and desire for independent learning. This paper outlines the development of inquiry based learning in a large upper level undergraduate class. Students engage in collaborative group research projects, critiques of peers' written work, and peer assessment. The use of learning technologies to facilitate peer communication, as well as feedback to and from the teacher, is integral to this process of 'learning as inquiry'. The paper briefly outlines the relationship between learning outcomes, teaching methods, including learning technologies, and assessment strategies in this unit of study. Two themes are then addressed: a) students' experiences of learning through inquiry or discovery, and b) the advantages of appropriate learning technologies to enhance student learning in this context. The paper

proposes that inquiry based learning enhances and supports students' independent learning, as well as fostering students' sense of place within the community of the university.

21) Linking Teaching and Research in English

The aim of this initiative is to indicate the integral nature of the links between research and teaching through using the MA in Shakespeare Studies: Text and Playhouse run jointly by the English Department at King's College, University of London and the Globe Theatre. The course concentrates on Shakespeare's dramatic texts, and the manner of their performance in the Globe theatre. This MA is heavily informed by two forms of scholarly research, textual studies and performance practice. The students are encouraged to conduct their own primary research using the resources of the Globe theatre. Similarly the lecturers at Kings, who are involved in this programme, have taken the opportunity to test their own textual theories on the Globe

stage. Both Professor Ann Thompson and Dr. Gordon McMullan, who run the course for King's, have used elements of the performance aspects of the course in editing editions of the New Arden Shakespeare. This programme is not unique in its partnership with a theatre company, but is distinctive in that the theatre company has employed a full-time academic (Dr Gabriel Egan)

partly to run the course. This programme, therefore, presents a tremendous example of the interplay of teaching and research both for students and for established scholars.

Section 2 Contextualised case studies with references

Strategies for linking teaching and research at the level of the module/course at undergraduate and postgraduate level (Jenkins and Zetter 2003)

Develop students' understanding of the role of research in their discipline

- Develop the curriculum to bring out current or previous research developments in the discipline
- Develop the curriculum to bring out, incrementally, the way the core concepts, knowledge and practices of the discipline have developed through research
- Develop student awareness of learning from staff involvement in research
- Develop student understanding of how research is organised, commissioned and funded in the discipline/institution

Develop students' abilities to carry out research in their discipline

- Develop the curriculum., in particular how students' learn, in ways that mirror or support the research processes in the discipline
- Assess students in ways that mirror or support the research processes in the discipline. .Provider training in relevant research/skills/knowledge
- Develop student involvement in staff research by inviting students to staff seminars
- Re-run research projects as teaching and learning tools for students to validate research design, methods, data sets and to rework analysis and reporting
- Critique staff publications from research perspective; ask students to design their own methodology
- Provide students with a dissertation topic list which, appropriate to their level of study, interacts with current staff research projects
- Ask staff to present their research in research methods course in terms of 'how did you research this issue?'; 'what were the problems?'. Ask students to critique the approach.
- Ensure that the dissertation component of a degree is supported by a research training tool kit clearly articulated and embedded from preceding course

modules/units.

Privilege research opportunities to selected students

- In the USA, which has long operated a mass higher education system, student involvement in research with staff is mainly or only offered to those with high grades/motivation.

Manage student experience of staff research

- Limit the negative consequences for students of staff involvement in research. Most important here is managing the student experience of the days (and sabbatical terms) when staff are away doing research. At a minimum, students need clear information as to when staff are available
- Evaluate/ research the student experience of research and feed that back into the curriculum
- Support students in making clear to them the employability elements of research

1) Staff-student interview project - 1

Department of Geography, Oxford Polytechnic (now Oxford Brookes University)

Case study: Cosgrove D (1981) Teaching geographical thought through student interviews.
Journal of Geography in Higher Education 5 (1): 19-22.

A final year synoptic module on the nature of discipline thought/practice. Lectures and readings set out the main directions and controversies in the discipline.

Students were divided into groups and each group allocated a member of staff, who gave them a copy of his CV. A student group then interviewed that member of staff (with the rest of the students attending), about their academic history and views on the nature of their contemporary discipline. The student group then wrote up the interview and set that persons' view of the discipline in the wider context of the contemporary discipline.

2) Staff-student interview project - 2

Geography Department, University College London.

Case study: Dwyer C (2001) Linking Research and Teaching: a staff-student interview project.
Journal of Geography in Higher Education 25 (3): 357-366.

The department requires all year one students to do an assignment in term one, in which students interview a member of staff about their research. Each first year tutorial group is allocated a member of staff who is not their tutor. Tutorial groups are given by that member of staff three pieces of writing which are representative of their work, their CV and arrange a date for the interview. Before the interview students read their materials and develop an interview schedule etc. On the basis of their reading and the interview, each student individually writes a 1,500 word report on a) the objectives of the interviewee's research; b) how that research relates to their earlier studies; c) how the interviewee's research relates to his or her teaching, other interests and the discipline as a whole.

3) Student research/interview project

Department of Geography, Liverpool John Moores University

A required assignment in a third year synoptic course is an essay which "With regards to a key (discipline specialist), summarise the main features of his/her work, show how this relates to methodology, and develop critiques of this work from one of the methodological perspectives presented in the module", This assignment requires extensive bibliographic work and students may contact the researcher by email to answer specific questions (if they are still alive). They are not allowed to do a study of staff in their department.

4) Introducing the nature of the discipline to 1st year students

Gaynor Macdonald, Department of Anthropology, University of Sydney

Case study: <http://www.itl.usyd.edu.au/rlt/examples/>

Introducing a discipline to 1st Year students has always been a challenge. The desire to cover the basics and to provide a broad foundation to the 'who', the 'what' and the 'why' upon which senior courses will build, does not always sit well alongside the desire to capture their imaginations, teach them critical skills, encourage them to reflect on their own practice and to think for themselves. Add to this the interest that most active researchers have in teaching what they do, and it often seems that something has to give. This presentation will illustrate the way in which a half-semester 1st year course in Social Anthropology was developed so as to address these issues. It takes a topical and often controversial issue, Native Title, as a means of engaging students with their contemporary society. I had been involved in the anthropology of Native Title in both academic and consultancy contexts and, as became clear in my own practice, it was necessary to understand, to be able to work with and to critique, a century of Australian anthropology in order to understand how to approach a native title case and to understand the theoretical as well as political and ethical issues it raised. The course was designed to take students on the journey that I, as researcher, had travelled and, in doing so, bring to them some understanding of my discipline, past and present – its history, methodologies and subject matter, and what challenges it currently and potentially addresses. It sought to combine a specific and personalised encounter with the discipline with a more general understanding of its breadth and depth. The presentation will demonstrate the way the course content was structured to meet these objectives.

5) The digital 'vignette' -bringing research to the classroom from Niah Cave, Sarawak

Assoc. Prof. Michael Bird, National Institute of Education, Nanyang Technological University, Singapore

Case study: <http://www.gees.ac.uk/linktr/Bird.htm>

There is a perennial problem teaching field-based disciplines such as physical geography in trying to explain the 'real world' while cooped up in a classroom. This is particularly true of field techniques, which are best explained while actually in the field somewhere. Nevertheless, a basic appreciation of what is involved in applying the techniques must generally be imparted in the classroom before students are let loose to try things out for themselves. This is particularly true where field projects are (a) based on a short fieldtrip period, and (b) assessed. Under these circumstances, student performance in the field project is directly related to how well they have absorbed the classroom 'blurb' that precedes the fieldwork, that is, how rapidly they can get down to doing useful work.

The problem of course, is that field techniques taught in a classroom are not, of themselves, very interesting subject matter. To combat this I use what I've taken to calling 'digital vignettes' - each vignette is on a single 'byte-size' subject and a complete vignette includes (i) fairly amateur digital video shot at a suitable field site with explanation in the field, (ii) high resolution digital photos which enable the detail to be shown after the video, (iii) written text regarding the subject of the vignette, and (iv) where appropriate, samples collected from the same locality as appears in the video and photos. I have found this works very well to maintain student interest and helps in comprehension of complex ideas.

6) Learning through the class survey – pre-fieldwork locale activity familiarisation exercises

Dr. John H. McKendrick, Centre for Research on Families and Relationships, University of Edinburgh

Case study: <http://www.gees.ac.uk/linktr/McKendrick3.htm>

Fieldwork and residential field courses are an integral part of geographical education. However, concerns have been expressed that fieldwork, and in particular residential fieldwork, is detached from class-based learning. By requiring students to complete two introductory surveys at the outset of the module - a 'place perception' survey and a visitor attraction/place awareness/experience survey - the detachment of fieldwork from university-based teaching can be addressed. Most importantly, this has the added benefits of 'personalising' the field course for each student, preparing them for fieldwork and raising their enthusiasm for, and awareness of, the field location in advance of the field visit.

7) Four examples to promote the synergy in History

Professor Simon Ville in History, University of Wollongong, Australia

Case study: <http://cedir.uow.edu.au/nexus/example12.html>

I think there are a number of important links between teaching and research, which emphasise the synergies that each provides to the other. From my own experience I can cite at least four different ways in which teaching and research are linked together. These include writing a textbook on European transport. The importance here is that the research subject material has been diverse, highly specialised, sometimes quite technical and written in multiple European languages. The textbook provides for students a synthesis of research into that subject and makes it much more accessible in the limited time they have to study the subject at an undergraduate level.

The second way in which there are synergies between the two is where you teach an undergraduate unit in as comprehensive a way as possible covering all possible aspects of the subject. Of course research has not covered all aspects which therefore helps the lecturer to identify where the main gaps are in the research and literature and provides an incentive for academics to undertake research to fill those gaps. I found this experience teaching Australian economic history where it seemed to me there were several major gaps in the literature, one of which was about one of Australia's leading industries in the 20th century – the stock and station agent industry. This led me to then go and write a history of the stock and station agent industry.

The third way research and teaching are linked together is where academics write specific research papers that can be used to give greater depth and focus to undergraduate teaching. Students have the opportunity to focus on particular issues guided by their lecturers who have specialised in a particular research area within the broader subject.

And fourthly, with my background as an historian, I've found that using historical materials, original documents and so forth I have used in my own research can be applied to undergraduate and of course postgraduate teaching to give greater depth and life and colour. I have just finished writing a book on the development of modern business in Australia, Japan, the US and the UK which includes not only broad surveys of the growth of business in several countries but also case studies of individual companies and original documentary material. Again, students can see the colour, the depth and the breadth of the subject as a whole.

I use my own research papers, and also talk to students about the whole research process what I have done to investigate a particular topic in more detail. For example if this involves going to archives, how it summarises the literature and uses criticisms of the literature. I think it important to give students an enthusiasm, a sense, a taste of what we do as researchers and what actually happened rather than give received secondary material researched by someone else.

8) ORIGIN: publishing undergraduate research in an extra-curricula house publication

Dr Jac Potter, Chester College of Higher Education

Case study: <http://bio.ltsn.ac.uk/projects/ltr/linkteachresearchcasestudies.htm>

Website: <http://www.chester.ac.uk/origin/>

A journal was devised to offer a genuine experience of research publication to students in response to a perceived need as a significant proportion of students go on to further discipline-specific study or research when their degree is completed. Publication does not accrue academic credit. The benefits of publication to the student are considered to be the genuine experience of completing the full research cycle and the end product, a professionally produced article, which student authors can include with their curriculum vitae. Feedback from student authors also indicates that they gain a great deal of personal satisfaction and learn a great deal about scientific writing and the research and publication process.

9) Taking learning into the *field*

Dr Julian Park, School of Agriculture, Policy and Development, University of Reading Case study:

<http://bio.ltsn.ac.uk/projects/ltr/linkteachresearchcasestudies.htm>

A core module has been designed to introduce students to basic research techniques and research issues associated with Rural Environmental Sciences using existing research projects and themes in the School and via field visits to local research institutions. This concept is underpinned by the high research rating of the School of Agriculture, Policy and Development from which the degree is co-ordinated, the availability of on-going research projects and the geographic position of the University of Reading which provides access to a number of high quality research institutes relevant to the degree subject. The actual background to activities that a given cohort of students pursue changes as different research projects are completed and new contracts won. This gives a dynamic background to the module which ensures students are being associated with the latest research projects.

10) Teaching experimental design using research based examples

Professor Ian Hughes, School of Biomedical Sciences, University of Leeds

Case study: <http://bio.ltsn.ac.uk/projects/ltr/linkteachresearchcasestudies.htm>

The principle involved in this link between teaching and research, which can be extended to any piece of research work, is to unpick with the students the actual design process which you went through before carrying out the work, or each successive piece of work in a series. This includes the thought processes and, most importantly, where in retrospect the design was poor. The background to the problem is explained along with the real-life constraints which caused a perhaps less than ideal design to be used. The actual outcome (results) are detailed and the lessons learned.

11) Learning the skills of reading scientific papers

Professor Ed Wood, School of Biochemistry and Molecular Biology, University of Leeds

Case study: <http://bio.ltsn.ac.uk/projects/ltr/linkteachresearchcasestudies.htm>

The principle involved in this link between teaching and research, is to provide practice in critically analysing the research literature. In a series of weekly tutorials (6 of 1 hour duration) students are asked to read one paper from the recent primary literature in preparation for the tutorial. The papers selected over the 6 tutorials deal with a broad spectrum of subject matter selected to provide a broad overview of the current research directions in the subject area. All the students in the group (about 6 students) read the same paper. The suggested preparation time for each tutorial is 3 hours. Before tutorials 1, 3 and 5 students are asked to write an abstract (-250 words) for the paper they have read (the abstract was removed from the version they read prior to the tutorial). For tutorials 2, 4 and 6 the students have to come to the tutorial prepared to discuss in detail any elements of the paper. In discussion with the tutor, students are encouraged to be critical and to try to understand the methods used and conclusions drawn. Marks are awarded for attendance and active participation.

12) Distant access to an ecological field experiment

Dr Alan Fielding, Department of Biological Sciences, Manchester Metropolitan University

Case study: <http://bio.ltsn.ac.uk/projects/tdf/fielding.htm>

The field experiment aims to identify the effects of grazing and woodland management on the biodiversity of regenerating and mature broadleaf woodland by using large scale manipulative, experimental treatments.

Biodiversity value will be assessed using surveys of flowering plants, arthropods and birds. The experiments will be undertaken on land managed for conservation by Highland Renewal on the SW tip of the island of Mull (<http://www.highlandrenewal.org/>).

Students will have full access to experimental details and all results, via a dedicated web site. The field sites are also freely accessible by visiting groups. Exercises that can be used as part of a course, or for independent learning are being produced.

13) Student organised conference

Dr Olivier Sparagano, Department of Agriculture, University of Newcastle upon Tyne

Case study: <http://bio.ltsn.ac.uk/projects/tdf/sparagano.htm>

Parasitology Conference is a new 10 credit module. Level 3 students are in charge of organising their own conference, from developing the programme and themes, choosing a suitable venue and caterer as well as presenting on the day.

Aims:

- ❖ Introduce students to future professional activities
- ❖ To gain experience in group work and developing team working skills
- ❖ To practice different ways of communicating scientific information
- ❖ To work with external agriculture related professionals

14) Writing for research users: briefing papers as coursework

Dr. John H. McKendrick, Centre for Research on Families and Relationships, University of Edinburgh

Case study: <http://www.gees.ac.uk/linktr/McKendrick1.htm>

A 'Research Briefing Paper' (also known as a Research Briefing or Briefing Paper) is a concise summary of research findings that is written for an informed, although not necessarily an expert, audience. Typically, research briefing papers are presented as a four-page A4-sized pamphlet, printed on A3-sized paper which is folded at its mid-point to form a stapleless seam. Each paper reaches a clear conclusion based on evidence and concise argument. This tends to result in a pace of writing that could best be described as 'swift'. Yet, coherency and substance are the hallmarks of a good research briefing paper: this is no insignificant undertaking for a paper that is less than 2500 words in length!

Practising Geography, the second year undergraduate Human Geography module at Glasgow Caledonian University, offers individual students the option of submitting coursework in the form of a briefing paper based on a small-scale, fieldwork-based research project that they themselves have designed and executed. On completion of the module, students can then elect to have their paper refereed by an independent expert (generally a local resident from the field locality or a member of one of the Royal Scottish Geographical Society's Regional Centres) as part of the StuP project (STUdent Publishing of fieldwork geography). The StuP project is based on the module. Publication on the StuP project website is conditional on an acceptable referee's report.

15) Establishment of an undergraduate e-journal

Dr Celia Knight, School of Biology, University of Leeds

Case study: <http://bio.ltsn.ac.uk/projects/ltr/linkteachresearchcasestudies.htm>

An undergraduate e-journal has been established based upon assessed final year research projects. The e-journal will be used as an example to undergraduates of how research results are disseminated and of the standards required for research careers. A longer term aim is to develop the resource with interested undergraduates taking responsibility for peer review and editing the journal, thus allowing them to develop work-based skills and a deeper understanding of skills required for successful research careers.

16) Linking research and podiatry practice

Gloria M Dunlop, Queen Margaret University College

Case study: <http://www.health.ltsn.ac.uk/projects/collaborativeproj/gdunlop/>

The teacher offers the students the opportunity to select a subject of his/her choice that is current to the developing practice of Podiatry. These topics must be relevant to Podiatry, need to be up to date and need to be supported by research evidence. The students will be expected to, select a relevant topic which is verified by the tutor, find and evaluate the relevant research work to support or refute the practice and present the case, in a 15 minute oral presentation to a group of peers, lecturers and external clinicians. A 5 minutes question time from the floor will follow. The students may present a case to introduce or implement a new treatment to Podiatry practice the research evidence. The presentation is assessed with the assessment marks broken down to 40% for the presentation content and 60% of the work presented in the format for a journal publication. Students are encouraged to publish work presented.

17) Research on a prescribed case study LLB module

School of Law, University of Birmingham

Case study: <http://www.ukcle.ac.uk/link/birmingham.html>

Building on modules studied at stages 1 and 2, seminars examine the nature of legal scholarship and methods for designing a research project. Working with primary and secondary material arising from a case study of a multi-faceted legal, social and political episode, each student then:

- devises a project design
- receives formative peer assessment on the project design
- provides formative peer assessment to another student's design

Each student individually carries out their research project and writes an essay and reflective account of the process by which the project was formulated and an assessment of the extent to which the project has met its objectives. Each student is expected to work independently with a high degree of learner autonomy.

In the final phase of the project, students are required to work collaboratively as a team to devise a strategy for disseminating some or all of their research output during the module in a format appropriate for a non-academic audience (for example policy makers in government, members of the general public or a professional group). The group produces a document explaining the strategy and may annex to it any actual or proposed output (for example a

briefing document, letter to the press, draft article for a magazine or newspaper, plans for a website etc).

18) The link between cultural identity and research

Associate Professor Gerry Turcotte, Head of the English Studies Program, University of Wollongong , Australia

Case study: <http://cedir.uow.edu.au/nexus/example6.html>

The author sees teaching and research as inextricably linked. His research interests, journal and book publications form the basis of the subjects he teaches in postcolonial theory, Canadian and Australian literatures, film and film theory and Indigenous Studies. He sees it as essential that lecturers conduct and bring their research into the classroom to ensure that students gain an understanding of up-to-date and rapidly changing theories.

In his Program students and lecturers often work together to discuss the complex ethical issues which revolve around research matters. Key issues of who owns and runs publishing houses, who decides who and what gets published, and whose voices are heard or silenced are examined. Gerry makes a point of working with guest lecturers in his many subjects, particularly in areas of high cultural sensitivity. In his Indigenous literatures subject, for example, visiting Indigenous lecturers discuss their own experiences in the world of publishing, and the sorts of pressures and dilemmas they often face, especially in the all-too-frequent situation of having to submit work for publication to presses run by non-indigenous people.

Students and lecturers work in concert with each other to explore issues of cultural identity and political agency. Discussions and student work feed directly into research publications, including PhD theses which in turn generate a new generation of scholars and teachers.

As Director for the Centre for Canadian-Australian Studies established in 2000, Gerry attracts internationally renown authors to numerous fora where students have direct access to authors' skills and craft in writing. Margaret Atwood, for example, recently visited Wollongong and discussed her latest book to an audience of over 300, and Gerry's Canadian literature students were given pride of place in the event. Similarly, numerous conferences and symposia have been organised around the key areas of teaching and research, and students have been invited to participate actively in these events, either as audience members, presenters or researchers.

In contemporary fields of study, where cultural and political policy change daily, and theoretical movements are constantly evolving, research and teaching have to be intimately linked or the material being taught falls rapidly out-of-date.

19) Developing students research skills

Kathie Cooper, Accounting, University of Wollongong, Australia

Case study: <http://cedir.uow.edu.au/nexus/example11.html>

Kathie sees developing students' research skills by requiring them to go through archives to find information about particular events, examining these from historical, political, and sociological perspectives.

She uses past and current media reports on accounting practices with a set of structured questions to help students to understand

- how principles work in practice
- how practices have evolved (or not) over time

- the power relations, who was heard and who was silenced, who was emancipated and who lost out

Kathie encourages student voice in the classroom, particularly that of overseas students by asking them to compare practices in Australia with those in their own countries. In this way she extends her own professional knowledge and that of the students. She believes students do become aware of the different locations in which knowledge is constructed as well as learning to look at issues from multiple perspectives.

20) Learning through inquiry: fostering the development of a community of researchers

Christine Crowe, Sociology, University of Sydney

Case study: <http://www.itl.usyd.edu.au/rlt/examples/>

Involving undergraduates in the research process exhorts students to learn by active participation and encourages the development of a sense of a community of researchers. Learning through inquiry places the teacher as 'companion researcher' or guide (Boyer Commission 2000) and facilitates students' ability and desire for independent learning. This paper outlines the development of inquiry based learning in a large upper level undergraduate class. Students engage in collaborative group research projects, critiques of peers' written work, and peer assessment. The use of learning technologies to facilitate peer communication, as well as feedback to and from the teacher, is integral to this process of 'learning as inquiry'. The paper briefly outlines the relationship between learning outcomes, teaching methods, including learning technologies, and assessment strategies in this unit of study. Two themes are then addressed: a) students' experiences of learning through inquiry or discovery, and b) the advantages of appropriate learning technologies to enhance student learning in this context. The paper proposes that inquiry based learning enhances and supports students' independent learning, as well as fostering students' sense of place within the community of the university.

21) Linking Teaching and Research in English

LTSN English

Case study: <http://www.english.ltsn.ac.uk/projects/resteach.htm>

The aim of this initiative is to indicate the integral nature of the links between research and teaching through using the MA in Shakespeare Studies: Text and Playhouse run jointly by the English Department at King's College, University of London and the Globe Theatre. The course concentrates on Shakespeare's dramatic texts, and the manner of their performance in the Globe theatre. This MA is heavily informed by two forms of scholarly research, textual studies and performance practice. The students are encouraged to conduct their own primary research using the resources of the Globe theatre. Similarly the lecturers at Kings, who are involved in this programme, have taken the opportunity to test their own textual theories on the Globe stage. Both Professor Ann Thompson and Dr. Gordon McMullan, who run the course for King's, have used elements of the performance aspects of the course in editing editions of the New Arden Shakespeare. This programme is not unique in its partnership with a theatre company, but is distinctive in that the theatre company has employed a full-time academic (Dr Gabriel Egan)

partly to run the course. This programme, therefore, presents a tremendous example of the interplay of teaching and research both for students and for established scholars.

Section 3 : Bibliography for anonymised case studies

Use the reference number to identify correct details for each 'doctored' case study

1) A staff-student interview project 1

Department of Geography, Oxford Polytechnic (now Oxford Brookes University)

Case study: Cosgrove D (1981) Teaching geographical thought through student interviews.

Journal of Geography in Higher Education 5 (1): 19-22.

2) A staff-student interview project 2

Geography Department, University College London.

Case study: Dwyer C (2001) Linking Research and Teaching: a staff-student interview project.

Journal of Geography in Higher Education 25 (3): 357-366.

3) Student research/interview project

Department of Geography, Liverpool John Moores University

Case study: see session handout p14

4) Introducing the nature of the discipline to first year students

Gaynor Macdonald, Department of Anthropology, University of Sydney

Case study: <http://www.itl.usyd.edu.au/rlt/examples/>

5) The digital 'vignette' - bringing research to the classroom from Niah Cave, Sarawak

Assoc. Prof. Michael Bird, National Institute of Education, Nanyang Technological University, Singapore

Case study: <http://www.gees.ac.uk/linktr/Bird.htm>

6) Learning through the class survey: pre-fieldwork locale familiarisation exercises

Dr. John H. McKendrick, Centre for Research on Families and Relationships, University of Edinburgh

Case study: <http://www.gees.ac.uk/linktr/McKendrick3.htm>

7) Four examples to promote the synergy in history

Professor Simon Ville in History, University of Wollongong, Australia

Case study: <http://cedir.uow.edu.au/nexus/example12.html>

8) Origin: publishing undergraduate research in an extra-curricula house journal

Dr Jac Potter, Chester College of Higher Education

Case study: <http://bio.ltsn.ac.uk/projects/ltr/linkteachresearchcasestudies.htm>

Website: <http://www.chester.ac.uk/origin/>

9) Taking learning into the field

Dr Julian Park, School of Agriculture, Policy and Development, University of Reading Case study:

<http://bio.ltsn.ac.uk/projects/ltr/linkteachresearchcasestudies.htm>

10) Teaching experimental design using research based examples

Professor Ian Hughes, School of Biomedical Sciences, University of Leeds

Case study: <http://bio.ltsn.ac.uk/projects/ltr/linkteachresearchcasestudies.htm>

11) Learning the skills of reading scientific papers

Professor Ed Wood, School of Biochemistry and Molecular Biology, University of Leeds

Case study: <http://bio.ltsn.ac.uk/projects/ltr/linkteachresearchcasestudies.htm>

12) Distant access to an ecological field experiment

Dr Alan Fielding, Department of Biological Sciences, Manchester Metropolitan University

<http://bio.ltsn.ac.uk/projects/tdf/fielding.htm>

13) Student organised conference

Dr Olivier Sparagano, Department of Agriculture, University of Newcastle upon Tyne

Case study: <http://bio.ltsn.ac.uk/projects/tdf/sparagano.htm>

14) Writing for research users: briefing papers as coursework

Dr. John H. McKendrick, Centre for Research on Families and Relationships, University of Edinburgh

Case study: <http://www.gees.ac.uk/linktr/McKendrick1.htm>

15) Establishment of an undergraduate e-journal

Dr Celia Knight, School of Biology, University of Leeds

Case study: <http://bio.ltsn.ac.uk/projects/ltr/linkteachresearchcasestudies.htm>

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