Linking research and teaching in Wales

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on behalf of the Research-Teaching Nexus Action Set
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Introduction

What makes higher education ‘higher’? Many people argue that it is research and its findings that give higher education its unique and distinctive characteristics. Curricula should be overflowing with cutting-edge material derived from the lecturers’ own research, and learning should take place within a culture of inquiry and problem solving. Yet this is often far from the situation at many higher education institutions (HEIs), with local and national drivers often splitting off teaching and research active staff into different silos, reducing the crossover between the two and arguably affecting the student experience.

Not so long ago, the UK Government discussed establishing research- and teaching-only HEIs, but such a notion has been put on the shelf, for now. Many academics would agree with the benefits of linking research and teaching both in developing curricula and influencing student learning, but what is available to support the lecturer? The Higher Education Academy has championed what is often referred to as the research-teaching nexus through a number of publications and the funding of advisers to talk to groups of academics in workshops, seminars and keynote lectures. The publications include several monographs authored by Professors Alan Jenkins and Mick Healey, all of which are freely available for download from the Academy website (Jenkins, 2004; Jenkins and Healey, 2005; Jenkins et al., 2007; Healey and Jenkins, 2009). These authors also provide advice to academics through Academy events, sometimes through the Academy Subject Centre Network.

In Wales, the Higher Education Academy Welsh Institutional Group established an All Wales Research-Teaching Nexus Action Set early in 2009 to collate and disseminate practice, and to explore ways in which the nexus may be strengthened in Wales. I was invited to chair the Action Set and representatives from all Welsh HEIs attended the first meeting at the University of Wales, Newport, in February 2009. It was decided at this meeting to organise an All Wales workshop for later in the year to fully explore and develop an approach to strengthening research-teaching links in Welsh HEIs.

The workshop took place at the University of Wales’s Gregynog Hall, near Newtown, Powys, on 1–2 September. It was facilitated by Professors Jenkins and Healey and attended by around 25 colleagues from most Welsh HEIs. The workshop was a success and a number of actions and recommendations came from it:

1. The creation of an Action Set Blog (http://nexus-wales.blogspot.com) to collect reactions and resources arising from the workshop;
2. The publication of Welsh research-teaching nexus case studies (this volume);
3. To organise a series of discipline-focused research-teaching nexus workshops throughout Wales in association with appropriate Academy subject centres;
4. To convene a second All Wales workshop in 2010 to focus on enhancing the links between research and teaching in institutional strategies.

It is this last action that is seen as the most important because all Welsh HEIs have been asked by the Higher Education Funding Council for Wales (HEFCW) to provide the next generation of learning and teaching strategies in 2011. The Gregynog workshop highlighted the fact that few current learning and teaching strategies make explicit links to research, and that research strategies are even worse at mentioning teaching! Therefore, the Action Set has a significant opportunity in 2010 to strongly influence the strategic direction of Welsh HEIs and to forge closer links between research and teaching. In some HEIs this is already happening to an extent (e.g. Haslett and Rowlands, 2009) and the Action Set has helped to gather momentum across Wales.

The All Wales Research-Teaching Nexus Action Set is also involved in advising the organisation of a new biennial Welsh Higher Education Learning and Teaching Conference. The Action Set is backing the publication of proceedings arising from the conference, and is also encouraging colleagues from Wales to participate in other conferences, such as the Annual Conference of the International Society for the Scholarship of Teaching and Learning (ISSoTL) in Liverpool in October and, for the second year running, the Society
for Research into Higher Education (SRHE) is holding its Annual Conference in Wales, at the Celtic Manor Resort in Newport. Altogether, with a new generation of strategies on the horizon and opportunities for academics to develop and disseminate their practice, there is great potential to forge strong links between research and teaching in Wales. The Academy Action Set is making an important contribution within Wales and will help to shine this out and beyond the Principality’s borders.

This volume is a direct result of the Action Set and demonstrates the wide range of innovations currently practiced in Wales to strengthen the links between research and teaching. The 29 case studies presented here have been arranged under five chapter headings. Although somewhat arbitrary, these chapters serve to present and highlight the areas where research-teaching links are being made. Although the links between research and teaching in higher education are broader than the concept of the research-teaching nexus (Haslett, 2009), the case studies presented here by and large focus on how mainly undergraduate students experience and undertake research as part of their studies, although many are also examples of research-informed teaching. Many academics argue that linking research and teaching enriches the curriculum and enhances the students learning experience, and leads onto a lifelong learning journey. The link, and ‘integration of scholarship, research and professional activities with teaching and supporting learning’, is a central area of activity forming part of the UK Professional Standards Framework. It is hoped that this collection of case studies will stimulate further innovation in Welsh higher education and beyond, helping students on the journey and promoting excellence in learning and teaching.

There is at least one case study included in this publication from each HEI in Wales, and I would firstly like to thank the case study authors for their contributions. I am also very grateful to the various institutional representatives who have sat on the Research-Teaching Nexus Action Set, many of whom have been very active in soliciting case studies for this volume. Also, to Professors Mick Healey and Alan Jenkins for facilitating the Gregynog workshop and helping the Action Set to formulate a plan of activity, including this publication. Finally, the Higher Education Academy in Wales has been extremely supportive of the Action Set, not only in setting it up, but in providing administrative support and funding for meetings, the Gregynog workshop and this publication; therefore, thanks go to Gabriel Jezierski, Rachel Thomas and Amanda Latham.

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1. Research in the curriculum and assessment practice

Embedding research throughout the curriculum at the institutional or department level is an approach that ensures the experience of all students is enriched (Jenkins and Healey, 2005; Jenkins et al., 2007), but achieving wholesale commitment from managers and academics at this level is not without its problems. In this chapter, seven case studies are presented that provide examples of research-informed developments and how research may feature prominently in curricula, its delivery, and in assessment.

1.1 Integrating research and teaching – a structured curriculum approach

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Context
Approximately 400 students on UG degrees in the School of Sports Health and Exercise Science (SSHES) with 17 full-time academic staff who are research active and were returned in Unit of Assessment 46, in the Research Assessment Exercise 2008. Research is fully integrated into teaching in two main ways: first through the structure of the curriculum; and second through subject-specific research activities on modules.

Research structure of curriculum

Level 4
— Academic skills module (20 credits) – library skills/academic reading/writing/Excel;
— Research skills module (10 credits) – descriptive and inferential statistics, hypothesis testing;
— Introduction to research in SSHES (20 credits) – two-hour lectures by staff on their area of research interest – providing suggestions for third-year research projects.
Level 5
— Research methods module (20 credits) – computational statistics and philosophy of science;
— project proposal (10 credits) – students work with supervisors; rationale for study;
  verbal proposal in front of two academics, one PhD student and a group of UGs;
  gain ethics approval; written proposal.

Level 6
— research project (40 credits) – data collection of project proposal research question;
— presentation of results at student conference – poster presentation or verbal
  presentation in front of peers (170) and written research project;
— encouraged to present at relevant external conference.

Does it work?
Yes, the School has grown a very supportive research culture for undergraduate
students, with external examiners repeatedly reporting that this aspect is a
considerable strength of the teaching and learning environment in SSHES. Further, over
the last five years, students have won a top award three times and secured one second-
place finish at the Annual Student Conference of the British Association of Sport and
Exercise Sciences (BASES).

Issues and how have you dealt with them
In recent years, with a move to mass education, the development of a level 4 Academic
skills module (which involves basic study skills such as understanding academic reading/
numeracy/referencing) and a level 6 dissertation route for students who gain 40-49% on
the level 5 project proposal module was a necessity. Further, with an increase in staff
numbers, students were not being exposed to academic staff at level 4 in order to be
able to make informed decisions on what area to research for their research project;
 hence the development of the Introduction to research in SSHES module.
1.2 Developing research skills with electronic voting systems

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Context
For ten years, electronic voting systems have been part of my research and teaching. It has proved to be beneficial in relation to student engagement, and knowledge and skills development. Electronic voting systems allow the user to present question sets, feedback responses to questions immediately and analyse the information captured. Students from undergraduate and postgraduate courses have used the voting systems to support their learning and been encouraged to use them as part of their own research projects. There are many systems available and the current system being used is ‘TurningPoint’. TurningPoint has portability, a PowerPoint style interface, opportunity to import other media e.g. video clips, different types of handsets and a range of data analysis reports. The voting system has helped students to work on case studies, develop research skills, manage collaborative situations and use the technology to conduct their own research.

As part of my own research I have used voting systems for data collection with focus groups, as a tool to evaluate and understand group dynamics and to explore ways of developing collaborative learning. As a tutor on undergraduate and postgraduate research methods courses, I felt it would be useful tools for my students to consider.

What do students/staff do?
As part of two research methods modules, students are given the opportunity to experiment with the electronic voting systems as a method of running a focus group. It was incorporated into a teaching strand that explores the benefits of ‘mixed methods’ in research and looked at how a tool that captures a great wealth of quantitative data can complement a more qualitative face-to-face focus group. Students are either allocated a handset each or one handset was given to small teams. This provided an opportunity for both the tutor and the student to evaluate the benefits of different types of interaction. In all of the sessions to date, the students seemed quite relaxed about the technology. They were very interested in the feedback screens, and were focused and attentive. Students felt that they could express their opinions without
being judged by either their tutor or their peers. The feedback screens appeared to
make them more comfortable in presenting their ideas. From their perspective the
advantages of using the voting system as a research tool are that:

— it is possible (when appropriate) to provide immediate feedback on issues
discussed within the focus group;
— as Social Science students their research could involve dealing with sensitive
issues and the technology could help them capture opinion on difficult topics. For
example, one student used the voting system to conduct a focus group on
attitudes to political torture;
— all participants are able to contribute to the debate by voting for their preferred response
to questions set. However, it was also possible to have a face-to-face discussion too;
— the ability to analyse the results in conjunction with the qualitative material collected.

Does it work?
Students were interested in the ways in which the voting system had been used to carry
out research and identified ways in which it could become a useful part of their own
research toolkit. This is an ongoing piece of collaborative tutor/student research as we
jointly explore ways in which this particular tool can be used.

1.3 Literature reviews as an assessment vehicle
– Business undergraduate students

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Context
The literature review assignment was incorporated into the Digital Economy module (level
5). This is a core subject for all students studying undergraduate Business pathways, full- or
part-time (including marketing, accounting, law, HRM etc). In semester 1 (2008) 60 students completed the assignment and in semester 2 (2009) 50 students completed the assignment.

What do students/staff do?
The undergraduate Business teaching team have concerns that many students seem reluctant to engage with academic literature, particularly journal articles. All undergraduate modules within the Department of Business & Law are assessed against six learning outcome domains, which include research (LO2), practical skills such as referencing/production of bibliography (LO6) and communication (LO4). Over a period of time, it has become apparent that students often obtain lower marks for these learning outcomes as compared to knowledge (LO1), argument/application (LO3) and contribution and reflection (LO5). Additionally, this reluctance to engage with academic literature causes issues when the students complete dissertations/research projects at level 6 (year 3) and if students progress to postgraduate study.

Initial enquiry indicated that students were often ‘afraid’ of journals articles; for example, finding the structure and writing style confusing. Therefore, the team decided to introduce an in-course assignment focused around the production of a literature review for a core module within a level 5 (year 2) module of the undergraduate Business programme. The Digital Economy module was chosen because it has a diverse content that ties into most students’ pathway of study. The module tutor revised the Module Implementation Plan to include workshops relating to ‘What is a literature review?’ ‘Finding appropriate sources’ and ‘Writing a literature review’. Additionally, at the end of each subject area covered (e.g. e-government, digital marketing, social networking, the internet and culture), the tutor suggested topics that the students could choose for their review.

The assignment task was as follows: ‘Choose a topic relating to the Digital Economy which you are interested in and carry out a literature review.’

Does it work?
To a certain extent, this is a long-term strategy and as such it is difficult at this point to assess the success of the assignments. The 2008-09 students are now submitting assignments and working on their dissertation in year 3 of their study, so it will soon be possible to compare this cohort’s performance to previous ones. However, there is evidence that the level of accessing of journal articles from the University electronic databases has continued to increase for these students.

The grades awarded for this assignment were comparable with the grade distribution in other modules and in previous years for Digital Economy. There were some exceptional
reviews produced, one of which has been published in our new undergraduate Business and Law research journal – The New Researcher. The reflective journals produced by the students seem to indicate that most students felt their skill level had increased as a result of completing the assignment. Comments included: “It will definitely help me when completing future work”; “this has forced me to read more and summarise work”; and “I realised that my grammar needed improving and reading quality work helped me.”

As a tutor, I underestimated the amount of work that this strategy would generate and I certainly received more emails and more requests for appointments than for other assignments. Additionally, the marking of the reviews took longer than other assignments. However, overall, as an undergraduate team we believe that the inclusion of the literature review assignment has been of benefit to the students and we will continue to monitor the outcomes. The student body have definitely become more aware of tutors’ research activities as a result.

Issues and how have you dealt with them
Quotes from the students’ reflective journals have been used throughout this section to illustrate points:

— Initially, some students felt overwhelmed by the task: “when I heard what we had to do I was dreading it!”
— Additionally, some part-time students who were completing a HNC with no intention of progressing to a degree could not see why they were being asked to do this at the end of their course: “the final assignment of my study and it has been the most difficult”.
— Similarly, other students found it hard to understand why they could not bring in their own opinion: “I found it difficult to grasp the concept of creating a piece of work, solely based upon the views of others.”
— There were mixed views relating to the fact that students had to choose a topic area themselves: “I found it motivating that I could choose my own topic” versus “I spent far too much time deciding what I was going to write about”.
— Some students perceived the writing style required as a big barrier: “the main problem I came across was trying to write in a literature review style as I am so used to writing in an essay format.”

As the module was delivered in two separate semesters, it was possible for the tutor to plan intervention strategies in order to address some of the issues highlighted above. For example, the tutor provided literature reviews that had been written by
undergraduate teaching staff that the students were familiar with, in order to ease the fear. Similarly, the importance of the transferable skills that the students developed as a result of completing a review, were stressed. An important amendment in semester 2 was that the assignment brief was changed in order to explain how the literature review would fit into a whole research project. As a result students could see why they were not applying the literature at this point.

1.4 Assessment diaries: responding to the needs of tutors and students

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Context
Students want clear, specific and consistent communications from tutors on assessment information. The issue of assessment bunching is well documented in the literature and news; however, surprisingly few practical solutions have been provided in tackling such issues. How we manage the assessment process has an impact not only on students but also on both academic and administrative staff. The management of assessment, as Yorke (1998) stated, has received little attention in contrast to assessment methods. Yorke (1998) further asserted that the management of assessment is equally important, especially as students behave increasingly in customer-like ways.

This case study emphasises that assessment is a multi-faceted process and attention should be given not only to how we assess and how we provide feedback, but also to the overall management of the assessment process. In a recent Change Academy project at the University of Glamorgan, researchers discovered that students were very concerned about the communication around the assessment process. In many cases students worried about this more than about the assessment itself.

Most universities have a suggested turnaround for student feedback. The University of Glamorgan has in its student charter a ‘20 day’ rule for returning
assessments. From our research via focus groups and survey with students, it would seem that the ‘20 day’ rule was not always the issue. What was important to them was when an assessment was due back.

What do students/staff do?
The response to improving timeliness of feedback by the Psychology team was to develop a diary of assessment and hand-back dates for both the students and staff. The assessment diary is a simple but effective way of managing expectations and helping students to manage their time by providing them with an overview on assessment deadlines and when they can expect their feedback to be provided. The Divisional Head for Psychology compiled the pilot diary in consultation with colleagues. A crucial part of the development was to agree targets that were realistic for both staff and students. The diary is simply a list of module codes and titles, with dates for assessment submission and return. This information was posted on the VLE and was available at a number of key points in the Faculty. In a parallel process, an electronic task list of all hand-back dates was posted into staff Outlook calendars to alert staff to impending deadlines. Again, this was done in consultation with staff to ensure that expectations were realistic and achievable.

Does it work?
An online survey, using Questionmark Perception software, was attached to all Psychology modules on Blackboard during the first year of diary use. It asked students to reflect on their experiences of feedback and assessment. Both qualitative and quantitative data were captured. The analysis showed a positive reaction to the assessment diary and the timing and quality of feedback. The outcomes from the project to date are:

— that the assessment diaries manage student expectations, provide clarity and reduce anxiety;
— a better understanding of the student experience;
— structured organisation of feedback across the modules.

Since the initial pilot in Psychology, the assessment diary has been such a success that it has been identified as good practice by the institution’s Change Academy project and is now being implemented across all faculties in the institution. The model has now been adopted across the University and a database is being developed to give students a link to their own personalised version of the assessment diary via Blackboard. This gives exact information about when assignments are due for submission and return; automatically
generated emails remind both students and tutors when deadlines loom. The clear advantages of this simple intervention have made it established practice at Glamorgan. This case study provides a good example on how research in one department could have institutional impact to improve the student assessment experience.

I.5 Assessment: research-informed practice

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Context
The project aims to engage staff in putting assessment at the heart of learning, driving curriculum development and significantly contributing to a higher-quality student learning experience. The objectives of the project are: 1) improve the quality of the student experience so that assessment helps students’ learning; 2) develop and implement a revised approach to curriculum design so that assessment is at the heart of learning and 3) reduce assessment workload for staff and students.

What do students/staff do?
The University participated in a Higher Education Academy Change Academy initiative, which is a year-long programme of support for teams from higher education institutions to enable them to achieve complex institutional change. This Change Academy project acts as an important starting point towards a University-wide commitment to foster a culture of assessment for learning. The literature has highlighted the difficulties in initiating change in the area of assessment and feedback, and the persistence of traditional assessment focusing on assessment of learning (Elton and Johnston, 2002). The project involved two of the five University faculties. By demonstrating their good practice as case studies, reviewing or revising their existing assessment and feedback strategies, colleagues act as ambassadors for the project by sharing their
experiences with the rest of the University. This collaborative project has allowed the University to capture, co-ordinate, inspire and implement appropriate and engaging approaches to assessment from both staff and students’ perspectives.

In order to achieve the objectives, various methods of data collection were used targeting both staff and students (see Table 1).

Table 1: Methods of data collection.

<table>
<thead>
<tr>
<th>Methods</th>
<th>Students involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student focus group</td>
<td>Six focus groups involving 29 students from across different disciplines and years of study sharing with us their experience of assessment in the University.</td>
</tr>
<tr>
<td>Student survey</td>
<td>An online survey identifying students’ overall experience was carried out with 453 respondents.</td>
</tr>
<tr>
<td>Facebook group</td>
<td>Students were invited to join the Facebook group to share good or poor practice in assessment and feedback.</td>
</tr>
</tbody>
</table>

Hot tips
The project team explored the student view and also worked with staff to identify good practice and provide support for innovation and experimentation.

Does it work?
By successfully bringing the debate on assessment to the foreground and challenging many prevailing assumptions, this project has also produced many unexpected but positive effects on the institution’s assessment for learning agenda. A total of 30 modules from across the two faculties were involved, the following are some examples of what was proposed:

— replacing essays with alternative assessment methods, such as digital storyboard;
— introducing students to peer assessment and peer marking;
— exploring online assessment;
— developing reflective logs (via blogging);
— using audio files and audio feedback;
— developing holistic assessment across a number of modules.
development of an assessment diary for both staff and students, highlighting each award’s assessment deadlines and feedback dates. This was initiated in one of the faculties and has already been introduced to all faculties in the University following positive feedback from both students and staff.

This project has been cited as good practice both within and outside the University. The University is now in the process of cascading the success of the project to the rest of the faculties. This research provides valuable lessons to other higher education institutions by exploring the realities in making a strategic change from a culture where assessment is viewed as a mechanism of measurement to a culture of assessment for learning.

I.6 ‘Bridging the gap’ between theory and practice – situative learning and experiential techniques in the lecture theatre

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Context
The BSc Speech and Language Therapy degree taught at University of Wales Institute Cardiff (UWIC) is a four-year course that combines both academic work and clinical practice, and leads to a professional qualification. There are currently 127 students on the course. This intervention targeted the second-year students.

What do students/staff do?
The intervention took place in the second of a series of two lectures on Specific Language Impairment (SLI). It followed on from a session where students planned intervention for a video case study, based on their observations and relevant research. The session was designed to be a ‘practice field’ whereby information and constructivist tasks were presented in an environment authentic to Speech and Language Therapy
(SLT). This included exposure to the use of Paget Gorman Signed Speech alongside spoken language, and used a range of visual supports, e.g. colour coding, symbols and therapy techniques (recasting, modelling, repetition). The students were asked to participate in or observe a therapy session within the classroom, and then design and role play their own therapy input within small groups.

**Hot tips**

- **Use visual supports** – As students vary in their learning styles, the use of spoken, written and signed language meant that there was a variety of methods accessible to them. Their feedback reflected that different students had related to different methods during the session. It attracted and held the attention of students for longer.

- **Bring practical, work-based tasks into teaching** – Students on the SLT course are motivated by clinical practice as well as academic success. They enjoy clinical situations and by bringing clinically authentic material into the lecture theatre, they can see the direct relevance and are motivated to learn.

- **Vary the lecture to mirror the content** – The students experienced learning in the way that the children with SLI are taught, e.g. using repetition, extra processing time and concrete experiences. This gave them an extra layer of knowledge regarding SLI.

**Does it work?**
The students were positive about the session, and could successfully name techniques that they would use in clinic. One commented that “a direct representation of an activity done with SLI children gave a good insight”, and another commented that the session “made it more real and understandable”. The small group format allowed the lecturer to have more direct contact with the students and assess their learning.

**Issues and how have you dealt with them**
The session took place in a tiered lecture theatre, which is not an authentic environment for clinicians. Therefore, a lot of the work was carried out in small groups on the floor at the front or by sitting in small groups. They were encouraged to make the most of the space and resources provided, which is a fairly typical speech and language therapist’s situation.
The University of Glamorgan Blackboard Template Project: balancing consistency with flexibility

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Context
One of the most significant projects the University's CELT and LCSS e-Support Teams were involved with during the 2007-08 academic year was the Blackboard Template Project. As the aims and objectives stated below indicate, the template addresses long-standing concerns about students having a comparable experience when encountering different modules in the University's virtual learning environment (Blackboard). This new development has ensured a similar fundamental 'look and feel' to all Glamorgan's online modules.

Project aims
1. To provide students with a consistent, accessible overview within their own modules.
2. To provide the academic and support user with a suitable online environment to achieve Aim 1 through good pedagogical practice.

Project objectives
1. Provide a module overview to enable learners to find module information (e.g. topics, week-by-week breakdown of topics, deadlines, coursework, information) in one place.
2. Encourage consistency of core structure across modules for learners.
3. Facilitate the uploading of documents, links to resources etc. within a secure environment that supports and encourages good pedagogical practice.
4. By achieving the above aims and objectives, to encourage active use of Blackboard by students and academic/support staff.

What do students/staff do?
Project developments are reported under two separate sub-headings:

1. The development stage. This included cross-faculty focus and pilot group meetings where the appropriate design of the template was formulated. A key element is
the creation of an in-house module overview tool (accessed via the new ‘Module Overview’ button in the revised default Blackboard interface). A feature of this development is that core module information in the areas of Aims, Learning Outcomes and Assessment is automatically generated within the template from the validated module descriptor. A link to the full descriptor is also included in the overview tool. Furthermore, in order to encourage a sound pedagogical structure for the organisation of learning materials, when staff construct their content in a folder system under the new ‘Learning Materials’ button, links to the content will again be automatically generated in the Learning Materials Overview table. The project team recognised that our academic staff should retain flexibility and choice in how they present the detail of their content, and that the template should facilitate the work of building a module and not restrict it.

2. The next stage was the awareness raising and training phase of the project, The initial focus was working with senior academic staff in the faculties such as Heads of Learning and Teaching and Blended Learning Champions and addressing departmental heads meetings so that ‘cascading’ of information could be more readily implemented. Additionally, small group and one-to-one training sessions for staff were offered and widely taken up across the faculties. Supporting guidance and ‘how-to’ documentation was prepared and a publicity campaign exploited outlets including the Learning Zone blog and the CELT website.

Does it work?
The Blackboard Template has now been in use for two full academic years and feedback from research into and evaluation of both student and staff views of the project indicates that it has made a significant contribution towards giving students a consistent online experience, while allowing staff the flexibility they need in creating modules online.
2. Promoting undergraduate student research

Developing skills that enable undergraduates to engage in, and undertake their own, research is essential if students are expected to become increasingly autonomous and independent in their learning as they progress through their studies. Healey and Jenkins (2009) recently published a review and collection of case studies in Developing undergraduate research and inquiry and this chapter contributes new examples from higher education in Wales. The case studies here include innovative approaches to citation and referencing, peer discussion and engagement with academic literature. This last area includes examples from journal clubs, where students discuss published work, to undergraduate journals, where students edit and author the journal, to an example of students and academics co-authoring published papers together in the mainstream literature.

2.1 First steps for first-year students: using online databases and presenting research with Harvard-style literature lists

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Context
The Marketing Skills Tutorial module is for first-year marketing students at the School of Management and Business, Aberystwyth University. The purpose of the module is to teach some of the core skills marketing students need for their studies. Broadly speaking, this entails issues such as the generation of ideas that build on data on specific topics ('research') and their clear and convincing presentation. These elements are also central to the daily work life of a marketer.

In 2008 an exercise was designed (as a teaching cycle for the PGCTHE) for around 30 students aimed at integrating elements of research and teaching. Elements of “research-oriented teaching” (Jenkins et al., 2007, p. 29; Healey, 2005) were integrated into the
curriculum to make first-year students learn about a research process. When research is understood as some form of original investigation for the creation of knowledge, lecturers should provide first-year students with basic skills such as using online databases to find scholarly articles and how to integrate findings of these articles by using proper references. Having experienced that too many UG and even PG students are not able to set up proper literature lists, I decided to emphasise this element in the Marketing Skills module.

Being aware that proper presentation is crucial for academic work and that papers submitted for journals are unlikely to be successful if they do not comply with house-style referencing (usually derived from Harvard-style referencing), I handed out a Harvard style template in 2007 to the first-year students who were supposed to search for scholarly articles in the ‘ABI Inform’ and ‘EBSCO Business Source Complete’ databases, which were then to be listed in the respective format. The result was disappointing. Not one of the students submitted a flawless literature list. Although I was hoping that I could integrate some of the articles about a sub-field of marketing (‘marketing atmospheres’) into a research paper I was working on, the quality of the articles students found was disappointing. Many of the students did not distinguish between scholarly and newspaper articles and mostly used Google rather than the University’s costly online resources.

What do students/staff do?
In 2008 Marketing Skills students were asked to search for literature on a specific topic, to set up a literature list, and to present their findings in an essay. Students were supposed to go through various stages of a research process. Evaluation was planned via coursework – their work was marked and compared to the results of the similar assessment in 2007.

For providing a better framework, the task was embedded in a comprehensive explanation: the University policy about plagiarism was presented and the importance of not copying contents or presenting information without properly indicating the source was highlighted; the importance of clear layouts in day-to-day business practice in the marketing field was emphasised. Then the research topic ‘marketing atmospheres’ was introduced in greater detail with a presentation and a subsequent discussion. A representative of the University library was booked for two-hour presentations about how to use our online databases and students were strongly encouraged not to miss these sessions. The following sessions were used to practice referencing. Students were allocated into groups and were provided with a) books; b) printed journal articles; and c) newspaper articles. They were asked to set up a reference according to a Harvard style template. One representative of the group then presented the reference on the white board in front of the class and the format
was discussed in the plenum. Students experienced the difficulty of paying close attention to brackets, full stops and elements such as titles and the year of publication. Several rounds of exercises and the use of different sources helped to gain a more comprehensive understanding of the process.

**Does it work?**
The coursework results were much better in 2008 with some very good literature lists and some references to a special issue of a journal on the topic that I had not taken into account. However, as a hot tip, I would suggest continuously emphasising the importance of structured search and proper referencing – as these constitute core elements of 'research'.

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### 2.2 Supporting research through peer discussion

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**Context**
The final-year dissertation on the BA (Hons) in Post Compulsory Education and Training (PCET) follows directly from the Research Methods module, which is assessed by the presentation and write-up of a research proposal. In previous years we have found that the preparation for the dissertation via the research methods module has been challenging for the students. We sought ways to assist the students with their transition from being members of a class to individual researchers, and this year have trialled a themed Saturday morning support session with guidance dates for topic discussions.

**What do students/staff do?**
The sessions are organised over the time between completion of the Research Methods module (May) and the deadline date for the dissertation (May the following year). The programme is part-time and is for teachers who work in the PCET/lifelong learning
sector. The students are often teachers from vocational backgrounds who have returned to academic study following their required teaching qualifications. These qualifications are undertaken at level 4/5 and are followed with several modules of study at level 6, including the dissertation. The dissertation is thus the longest piece of work the students have undertaken and is found to be challenging for this particular group of students. In order to assist the students, who after their initial teaching qualification will have only attended the University on Saturdays, a Saturday morning workshop was instigated.

While the students are allocated a supervisor, as is normal practice, the five sessions aim to assist the student with their studies in several additional ways. They provide a support group of peers who are going through the same experience, albeit studying different research issues. They provide a purposeful timetable that is external to the student and therefore gives the student a clear framework and set of deadlines for the steps towards completing a dissertation. However, perhaps the most valuable aspect is that they provide a forum for discussing progress with their peers. Conversations are themed according to the time of the workshop; for example, the first one focuses on the literature review. Here the students discuss the relative merits of the search engines they have used and share useful references about research methods.

Responses from the students, to date, have been positive with the collective nature of the experience identified and commented upon. Attendance has been good with over 70% of the students making the effort to come along to the sessions, which are additional to their normal dissertation tutorials.

Subsequent sessions consider dissertation structuring (including managing long documents in Word), analysis, data presentation and conclusions. The sessions are teacher facilitated but student led and often discussions are productive while not staying focused on the specified topic. In short we have tried to create a community of practice in which BA dissertation students participate.

Although it is perhaps too early to make claims about the success of this initiative, the signs are good. We feel that it promotes the development of the student in three of the four of Healey’s (2005) quadrants, namely research-tutored, research-based and research-oriented. In addition, the initiative has resulted in an improved ‘research momentum’ among the group and the individuals within it.

Does it work?

Anecdotal responses from the students who attend, suggest that the intervention’s primary benefit is the collegial support. For the staff the advantage of maintaining the momentum of the students’ research is becoming apparent. First run in 2008–
09 with ten students undertaking their dissertations, 100% completed and achieved the award BA (Hons).

**Issues and how have you dealt with them**

Additional staff time of the Saturday sessions is needed.

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2.3 **Use of journal clubs in supporting research skills for practice in Occupational Therapy**

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**Context**

The Postgraduate Diploma in Occupational Therapy is a two-year pre-registration accelerated course, run in collaboration between Bangor and Cardiff Universities. For the first year, learning is at undergraduate level and the second year is at Masters. The focus of this case study is the use of journal clubs in developing research skills in Professional Studies in Occupational Therapy (Part 2), a first-year undergraduate-level module, and the exploration of professional approaches used in occupational therapy.

**What do students/staff do?**

This course uses problem-based learning (PBL) as the main approach to learning throughout the two years and students develop the skills of independent research, making connections for themselves and taking responsibility for their own learning from the very beginning. As postgraduate learners, there is an expectation that they will have already developed skills in their undergraduate degrees, such as literature searching and time management, which will support them in this style of learning. By the time students begin to critique the journal articles, they have completed nine months of the course and are familiar with the learning methods used.
Students are provided with a handbook for the module, clearly outlining the requirements of all aspects of learning and assessment for this module. Students are split into pairs and journal articles are chosen and allocated to those pairs by the module leader. The journal articles are chosen with the subject matter in mind, as well as the level of complexity of the research, to enable deep learning from both the process and the content. As well as critically evaluating the research, students are expected to gain a deeper understanding of the subject, which links in with the theory being explored both in other areas of the module and other modules running concurrently. A suggested article critique format is given and is designed to promote development of skills in evaluating the literature and theory application. A list of questions is given to the students, intended to promote critical thinking and an 'evaluation worksheet' is given to enable the students to usefully structure their thoughts.

Written guidance is given to students around how to approach the critical evaluation of published research with an open mind and to consider the context and background of the research, the objectives, the research question, ethical issues, methods, methodologies, conclusions and discussion of results. They are also expected to consider whether the research can be generalised, whether it adds to the body of knowledge in occupational therapy and how it might benefit them as occupational therapists and influence their practice. They need to consider their own learning needs and any gaps or issues for further learning as a result of this exercise.

Each student pair is allocated a slot on the timetable and they are expected to run a 'journal club' with their peers during that time, where they discuss their findings and facilitate a critical and reflective discussion about their article, using the written guidance as a framework for discussion. Although the articles are allocated specifically to pairs of students, all the students in the group are expected to have read all of the articles, and not simply focused on their own. They are expected to note any areas they have not understood, to try to find out more and to share their thoughts and opinions within the journal club. This aims to ensure that they read a broader range of articles, indentify their own learning needs and reach a deeper level of discussion within the journal clubs.

A member of lecturing staff is present in the journal club, having also read and critiqued the article, but in keeping with the PBL philosophy of the course, the students take the lead role in facilitation and the lecturer is there simply to be a group member and to ask relevant questions to stimulate further discussion as needed, or to assist in focusing the discussion if it goes off track.

Since PBL is the main learning approach used on the course, students are familiar with carrying out their own research into issues they need to explore in their PBL
groups. Although they are familiar with using academic sources for their PBL learning, this is the first time they are actively engaged in beginning to critically evaluate and analyse published research in a formalised and structured way.

Assessment – Summative assessment of students' ability to critique research is not formally carried out until they move on to completion of Masters level assignments in the second year, when the skills they have begun to develop at this stage are taken to a deeper level and a whole module is dedicated to research skills at Masters level. However, formative assessment is ongoing throughout all of the modules on the programme and is interwoven throughout the curriculum. Aspects of this Professional Studies in OT (Part 2) module are assessed formatively and summatively through a variety of different methods, (including a written examination and viva voce examination), all of which are aligned to assess the learning outcomes of several modules and are in keeping with the PBL philosophy of the course. What students learn in this module is assessed via their ability to utilise the theory both in University and on practice placements. By being able to critique the research they demonstrate an ability to be an evidence-based practitioner, a skill assessed on placement and within their PBL work in University.

Hot tips
It is important at this stage in the students' learning for the journal articles to be pitched at the appropriate level of complexity. You need to consider pairings of students in relation to their learning needs. For instance, it would not be fair to pair someone who you suspect might not do much work with someone who would willingly take on everything. The role of the tutor also needs to focus around supporting (and sometimes pushing) the group to take responsibility for addressing any shortcomings immediately.

Does it work?
Students generally take their responsibilities seriously and put a lot of effort into this aspect of the module. By sharing the responsibility for critiquing an article, the pressure to perform is reduced and they support each other through not only the background work but the facilitation of the session.

Issues and how have you dealt with them
As with all student-led learning, students can opt out and not engage. This has been less of a problem than might be expected, but has been dealt with by ensuring that all students give each other feedback on their journal club facilitation skills as well. So, if there are group members who are not engaging, it is up to the students to recognise
this and deal with it accordingly within the journal club session. Regarding leadership issues, this is primarily a teaching initiative and because it sits within a student-centred curriculum the main role of the tutor is to facilitate students to develop leadership skills themselves. As part of a PBL curriculum, there are few resource issues other than the copying of the journal articles and staff time.

2.4 Overseeing a student journal edited by students and consisting of student contributions

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Context
The journal Perspective/Safbwynt is a student journal edited by a team of undergraduate and graduate students and an academic. The journal includes essays submitted for assignments at undergraduate (years 1–3) and taught postgraduate level across the School's degree subjects: Health and Social Care, Social Policy, Sociology, Social Work, and Criminology and Criminal Justice. The journal is currently in its fifth issue and showcases essays (slightly edited and corrected in relation to spelling and grammar where necessary) and dissertation presentations that achieved a high 2:1 (minimum of 65%) or first class grade.

What do students/staff do?
The academic involved will provide oversight to the editorial board, prompt other academics and students for submission and will have final responsibility for the editing process. S/he will be involved in ‘training’ the editorial board in selecting good essays, editing them and providing feedback to contributors.

For the students, there are a number of layers to the student journal as a teaching aid. For very good and high achieving students recognition of their intellectual
development and high-quality work was conveyed solely through high grades on course assignments. Recognising the intellectual and academic achievements of students through the inclusion of their papers in the student journal provides important feedback of the educational environment of studying in higher education (see Ramsden, 1992, Ch 5). It highlights that deep learning and student engagement are highly valued and rewarded by means other than a good grade.

For new and weaker students there was little opportunity to see examples of high-quality work submitted by their peers pertinent to the courses they were undertaking. These high-quality, real-life examples provide some clear ‘external reference points’ on which students can measure their own work, which aids their development as ‘self-regulated learners’ and assessment of their own academic progress (Nicol and Macfarlane-Dick, 2006, p. 199). The journal is provided as an additional tool to the abstract marking criteria provided in the Student Handbook, which some students fail to understand and most have not noticed or read. In that way the student journal fulfils some of principles of good feedback practice as identified by the American Higher Education Centre (see Kelly, 2005, p. 79); namely that it facilitates the development of self-assessment; encourages peer dialogue around learning; helps clarify what good performance is; and encourages positive motivational beliefs and self-esteem. Of course, it is difficult to measure whether students take up the journal for this purpose, but, personally, I have used extracts from the student journal in various teaching sessions – the dissertation presentation – and in sessions on essay writing. This use has led to some anecdotal evidence indicating that students do use the journal. I delivered a workshop on ‘how to write a literature review’ for our dissertation students and mentioned that the journal included examples of the dissertation presentation students have to deliver as part of that module. Interestingly, some of the students, whose dissertation presentation I observed, included slides on ‘costs’ and ‘ethics’, which seemed entirely inappropriate in the context of their dissertation plans and were similar to one of the presentations included in the student journal, Volume 2 (2). I suspect that students looked at the journal and copied the format of the dissertation presentation: not quite the intended effect.

In the editorial team, the student editors learn about the process of looking carefully at other students’ work in order to correct it and how to provide constructive feedback; they are involved in the selection of additional content and discussion of what they would regard as interesting information, thus being appreciated and schooled as junior partners in the academic world (Bransford et al., 2000). By incorporating tips for revision and exam writing and providing a forum for other student-led bodies, such as the staff–student committee, peer guides, Bangor Visual Sociology Society, students
and their contributions to the School’s and the University’s academic and social life are recognised and valued.

Now, the main aims are to make the journal an integral part of the School’s ethos so its survival will not be dependent on individual members of staff or students. Thus, the aim is to engage a wider proportion of the student body and staff with a focus on Welsh-medium students and postgraduate students.

Hot tips
Producing the journal is time-consuming and does require a considerable amount of staff input – it is currently produced twice a year – and although there is a considerable amount of student input in the editing process, it is necessary for a member of staff to act as the final editor. I regard the student journal as a valuable tool in engendering a teaching and learning environment that is student-focused. It also is great fun.

Does it work?
We are in the process of publishing the sixth issue and have had a record number of contributions. Personally, I have made use of the journal in sessions discussing essay writing skills to good effect. The editorial team is stable and we have a sustainable mixture of graduate and undergraduate students of various levels. I have recently had the first request for essays from the journal from a prospective student. Extracts from the student journal are available on: www.bangor.ac.uk/so/current/journal.php.en.

Issues and how have you dealt with them
We experienced some problems where student and staff editors questioned the quality of submissions which, it was felt, did not warrant a mark in the range of 65% plus. This left us with questions over inclusion criteria and how much editing should take place considering that the essays might well be regarded as exemplary. We decided that in the spirit of showing what other students have done in order to achieve high marks we should keep editing to a minimum and recognise the diversity of expectations and student work worthy of high marks. Nevertheless, this issue raised questions about the consistency of standards and marking across our School that need to be addressed.

Getting students to submit their work for the student journal was initially a problem and getting a range of students and topics, in particular, Welsh-medium students and Social Work students, is still proving difficult at times. As stated above we had record submissions for the last issue of the journal and this includes Welsh-medium and Social Work contributions.
Regarding leadership, there are no problems in convincing colleagues of the value of the student journal as long as they are not required to contribute in relation to workload. Should I ask for someone else to take over the editorial role of the student journal, I would expect a problem with sustaining the journal.

Regarding resource issues, there are none over and above the staff time required. It is an online journal so there are no costs associated with that. We have produced a number of hard copies, which were funded by the Marketing department as we use the journal as a marketing tool at Open Days.

2.5 Research collaboration between lecturers and undergraduate students: co-authoring published papers

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Context
With the increasing emphasis on the desire for undergraduate students to become more independent and autonomous in their learning, research projects have (re) emerged as an important part of the undergraduate curriculum. However, the nature and significance of such projects should be considered from both the students’ and the academics’ perspective. They may be ‘dummy’ projects that simply occupy the student, who is assessed on such things as research methodology, scholarship and writing skills, but where the project content is almost irrelevant and not valued; or they may be projects where the content is as important as the research process, and could contribute new knowledge that is worthy of publication, either by the student alone, or as a collaboration with one or more academics.

This case study reports on an approach the senior author (SKH) has taken over a number of years to encourage undergraduate Geography student research contributions to ‘live’ projects, with the intention that co-authored papers published in
academic journals are an outcome. As a result of this approach, undergraduate students have been named co-authors 22 times on publications over the past 14 years. Burks and Chumchal (2009) have recently reviewed this topic and give ten reasons why academics should co-author publications with undergraduate students, including improved career pathways for both students and staff.

What do students/staff do?
The approach has been to advertise dissertation project titles, that link to current staff research, to undergraduates at the end of their second year. Where competition for popular titles arose, additional titles were negotiated with students. Several projects often occurred within a single area of research, and ‘research group’ meetings were held at intervals throughout the dissertation period, culminating with the opportunity for students to present at an end-of-year internal student conference. Following the submission and examination of the dissertation, a writing schedule was agreed for the production of a paper for publication. The publication would often involve more than one staff member and more than one student, who had all been contributing to the overall research project. Although staff members led the final manuscript preparation, students were invited to comment on final drafts prior to submission, and were involved at revision and page proof stages.

Hot tips
Advertise project titles at an appropriately early time in the second year of undergraduate students, prior to dissertation choice. Be clear about the nature and significance of the contribution to be made by the student to the project, and the likelihood of publication as ultimately some papers may be rejected. Include students in all stages of manuscript preparation, submission, revision and proofs stages, so they learn about the publishing process and the role of editors and reviewers. Ensure all authors receive reprints of the published paper.

Does it work?
As Burks and Chumchal (2009) suggest, co-authoring with undergraduate students is beneficial to both staff and students, so rather than rehearse a similar discussion, HEM (who is the most recent student co-author) reflects on her experience and the impact it has had on her aspirations:

   The initial experience of undertaking a research project (dissertation) as an undergraduate was a daunting task. As with any sizable project of this nature it
became increasingly interesting and important as the project took shape helping to provide additional focus, motivation and encouragement to complete the task. The fact that the research project was of a standard good enough to be published has impacted my experience as an undergraduate in many ways.

Firstly, it is now much more likely that I will undertake future research projects as a result of the quality of this first one. Confidence and self-belief and are qualities I have been fortunate enough to gain from this experience.

Secondly, the whole project was enjoyable and has worth to a broad audience. As I am passionate about science and education I strive to continue along the same path as it could have an impact on our overall knowledge of this and other equally important subjects. I believe there are more research papers that could be extracted from this research providing greater research opportunities.

As my home life settles down I am becoming ready to embark on a new project and with time I am confident this will involve more academic study. Initially this may be in the form of a PGCE as I feel it necessary to pursue my passion for education to a standard that correlates with my knowledge of the natural world. I will then be better equipped to educate people on the subjects I feel passionate about, maximising my potential influence to others. Other future aspirations include reading for a PhD when the correct time and opportunity arise.

In reflection the overall experience of contributing to published work has been rewarding and beneficial to many aspects of my life. It has enabled me to have a new understanding and appreciation of how I can communicate effectively to a larger audience than ever before.

In addition, it is worth noting that at least five undergraduate student co-authors went on to study higher research degrees (MPhil or PhD).

Issues and how have you dealt with them
The main issue is the role of the academic supervisor. Given the intention at the outset to publish the results of undergraduate research in mainstream academic journals, supervision of research from project design to execution perhaps requires more attention than for ‘dummy’ projects, as poorly executed projects could be a waste of time and resources, or even compromise a staff project entirely, e.g. if based on non-repeatable samples.
3. Giving students research experiences

Providing undergraduate students with insights into academic research is an important exercise, particularly in inspiring students to consider progressing to take a higher degree or a potential career in a research field. In this chapter, five case studies provide examples of how students experience academic research from reading researchers blogs, through an institutional programme for research summer 'internships', to examples of students having access to archives and resources, such as research equipment and facilities.

3.1 Using researchers' blogs to engage undergraduate students in research issues

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Context
This project involves all research active staff and all undergraduate students in the Faculty of Art and Design. Research-active staff are encouraged to 'blog' about their ongoing research projects with special reference to methodological concerns, obstacles and challenges as well as wider theoretical considerations as the work progresses so that undergraduate students can consult this continuing record and familiarise themselves with the research process.

We have undertaken informal research among our undergraduate students and we have found that there are several key barriers standing between them and the concept 'research': in summary, they are paralysed by respect. For many of them research is a remote pinnacle of thought, reached only by the most experienced, intelligent, diligent (in short, whatever qualities they do not believe that they currently possess) and our task is to familiarise research to them so that they can begin to contemplate their own work in a different light and recognise the gradual ascent up which they are being
led that will lead them eventually, should they choose to pursue the path, to research ‘proper’. Familiarisation is an exercise in the building of self-esteem as much as it is an exercise in training for student futures in a more specific sense: that is, we intend to help students to recognise the continuity between the tasks that they are currently engaged in performing and the activities brought conveniently under the umbrella ‘research’. In that way undergraduate students may come to value even more highly the skills, both subject-specific and transferable, that they already possess and those with which they will graduate.

**What do students/staff do?**

The first step in the project was to encourage research-active staff to set up blogs in which they were urged to describe the research process in as much detail as they were able to do. We asked them not to concentrate on outcomes but on the detail of the process. Thus, a member of staff considering embarking on a research project would be an ideal subject. She could set out in her blog the most preparatory thoughts, even the earliest ambitions (as it may be, just the ambition ‘to do some research’); she could discuss the stimuli acting upon her, from University policy imperatives and the urging of line managers, through peer pressure and the desire to gain esteem and reward, to the eagerness to find out something new. The criterion above all others would be honesty, and this blog would be directed to other members of staff in the same position and to postgraduate and undergraduate student audiences. Accurate conception of audience would be central to the success of the enterprise and therefore training and an approval procedure were required.

Training took the form of a half-day staff development event in which would-be bloggers were encouraged to talk through with faculty/school managers what criteria would be useful in identifying what would count as accurate conception of audience. These are given below:

— it had to be honest;
— it had to be encouraging;
— it had to set out, deliberately, avoiding ellipsis at the risk of being otiose, every detail of every stage of the process through which the researcher was going;
— it had to be confessional while remaining impersonal;
— for fellow staff members in addition to these criteria:
  — it had not to ‘talk down’;
  — it had not to take anything for granted;
— for postgraduates in further addition:
  — it had to take into account the postgraduate students’ ‘tyro’ status and condition by
explaining the details of the process (which would be necessary) while appearing to take it for granted that the reader already knew these things (this is an expansion of the third bullet point above and an application to this particular audience);

— for undergraduate students in further addition:
  — the writer had to bear in mind the differences between the three undergraduate levels (4, 5 and 6) as well as the difference between undergraduate and postgraduate.

These criteria are particularly difficult to meet and, as the blog had to address all these potential audiences at the same time, it was argued that it was only achievable at the expense of boring the upper end of the range or losing the lower. This led to a long debate about pitching taught material that was only resolved by agreeing to try it out in practice.

The Head of the School of Research was asked to screen pilot entries before the blogger was allowed to post the entries publicly. The blog would be made available through Blackboard to which all staff and students have access.

The next steps are to encourage students to access the blogs and to structure engagement with the blogs through assessed exercises such as review/summary exercises (at levels 4 and 5) and ‘mini-projects’ using either the methodological approaches that are discussed on the blogs or the subject material (at levels 5 and 6). At a later stage students will be encouraged to apply to join research teams comprising research-active staff and postgraduate and undergraduate students. The aim is to develop ‘vertical’ research teams engaged on continuing projects onto which incoming students and new staff members may be recruited to join existing team members as they progress through their degree programmes (postgraduate and undergraduate students) or develop divergent research activities (staff members).

**Hot tips**

The most important element to get right is the register in which the blog is written. The blog must provide an effective bridge between academic discourse and a more accessible register: it must not put off the reader, but it must encourage the reader to develop an academic discursive register herself.

**Does it work?**

At the moment the evidence of success is only anecdotal and monitoring suggests that the blog readership is still small. However, assessed exercises have not yet been introduced and comment, when it has been made available, is positive.
3.2 Authentic research experience for students: the Cardiff Undergraduate Research Opportunities Programme

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Context
The Cardiff Undergraduate Research Opportunities Programme (CUROP) has been a central University initiative since 2007. Approximately 30 students a year are involved.

What do students/staff do?
The CUROP programme provides funding for undergraduates to participate in staff-led research projects during the summer vacation. The goal is to give students a taste of real ‘live’ research, make genuine contributions to knowledge and experience academic dissemination activity. Past projects have included: Geophysics and landslide monitoring, contributing to a database of Victorian illustration and an oral history of Muslim migrants to South Wales.

All disciplines are eligible. Staff formulate project proposals that will need to demonstrate that there is a clear and meaningful contribution that a student can make and that the student will receive appropriate supervision. Proposals are evaluated by a panel consisting of the PVCs for Research and Learning and Teaching, along with other members of the Learning and Teaching Committee and student sabbatical officers. Student recruitment to projects (generally students between their second and third years) is the responsibility of project supervisors.

Hot tips?
— Buy-in from both Learning and Teaching, and Research Committees is key.
— Once the scheme framework is in place, investigate external funding opportunities.
— Ensure the dissemination of students’ work is given a high profile.
Does it work?
Feedback from students and staff involved with the scheme is overwhelmingly positive:

I thoroughly enjoyed the CUROP experience and felt that it had a significant impact on my decision to apply for a PHD this coming year.

It is useful personally as it gave me a taste of researching at an advanced level. We had enough freedom to get a full experience but we knew that there was help from our supervisors if we were unsure, which meant we were more confident. It has given me confidence in myself and my teamworking abilities and allowed me to pursue my interest in the subject matter.

The CUROP experience was really amazing as it gave me a chance to be exposed to the research aspect of optometry. It also gave me an insight as to how research work is. This experience has triggered my interest to work in the research field in the future if possible.

Staff benefit from valued input into research projects and have reported that the scheme can be an agent for forging new interdisciplinary collaborations.

Issues and how have you dealt with them? The key issue is the limited number of students that can participate, directly linked to resourcing issues. This can be mediated by external funding but is always precarious. The comparatively small number of participants can also cast this as an ‘elitist’ enterprise for the brightest and best.

It is important to note that such schemes depend on staff supervision, largely on campus, during the summer months. These demands on staff need to be made explicit from the start.

Proposal writing can be onerous for applicants: we are investigating a streamlined, online system.
3.3 Undergraduates as researchers: using original archives and historical sources

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Context
This is a pilot undergraduate project, funded by the University’s scheme for ‘interdisciplinary’ research projects. Project outcomes are now utilised annually in undergraduate workshops.

What do students/staff do?

— Participating lecturers allocate a slot in their module for undergraduates to attend a workshop in Special Collections and Archives (SCOLAR).
— The workshop gives a novices’ introduction to archives for undergraduates, and gives them ‘hands-on’ use of relevant historical archives and manuscripts in the workshop for their module.
— Students receive a Basic Guide to Archives from SCOLAR.
— Many students choose to come back to SCOLAR to use archival and related historical sources for writing their module essays.
— Lecturers monitor student essay topic choices if they are related to SCOLAR original source materials, and assess the essays for ‘originality’ based around use of those sources.
— Lecturers also monitor student responses to their ‘enhanced learning’ context, and any improved ‘research skills’ deriving from the workshops.

Hot tips

— Non-History students need a novices’ introduction to the study of ‘historical sources’; that can mean most printed and archival material before the 1940s.
— Digital natives are historical novices (across all subjects)!
— Link the workshops into the Library’s ‘Information Literacy’ programme for greatest effect, and the university’s wider research and teaching agendas.
— Having a printed, ready-made, novices’ ‘Guide to Archives’ is an essential back-up.
Does it work?

— In the first pilot cohort of English Literature undergraduates, 36 out of 39 improved their confidence in using historical sources in their academic work.
— More undergraduates come back to use the historical collections for their work, than was the case before the pilot began.
— “I think the project greatly enhanced the learning experience of the students on this module” (module lecturer).
— “The archives booklet was extremely useful” (student).
— Internationally, the idea that students should be ‘scholars’ is gaining pace.

Issues and how have you dealt with them

— The first need is to identify key lecturers or modules that will find this approach useful.
— SCOLAR then needs to identify if it has historical sources/collections that will be beneficial for students' learning and research experience.
— How lecturers assess whether the hands-on workshops are helpful can be subjective, but is nevertheless crucial; student feedback evidence can help.

3.4 Kit Parade

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Context
The Kit Parade is a new event piloted in 2009-10 at Cardiff University and organised by the Graduate School in Physical Sciences and Engineering.

Its aim is for academic schools to put on demonstrations of some of their research equipment for the wider academic community, in order to:
— increase interdisciplinary awareness of ongoing research in the physical sciences and engineering;
— increase contact between researchers across academic schools;
— encourage more general uptake of specialised experimental procedures and equipment;
— attract and entertain students and staff with unusual, ingenious and impressive demonstrations.

One way of encouraging research transfer between disciplines in a university is for its members to be aware of what research goes on elsewhere and to find it attractive. It normally takes time for staff or students to learn what research is being undertaken in other academic schools, even if they are interested. However, in the physical sciences there is an opportunity for the apparatus used in research to act as a focal point for attracting interest and explaining research programmes.

Academic schools in the physical science and engineering disciplines are often equipped with specialised and unusual research apparatus. Much of this equipment lies behind laboratory doors unseen and unheard of outside the School. A standard facility in one line of research might be unknown in another. This is not by intention but by happenstance: there are few opportunities to make it visible.

It is hoped that by drawing attention to some of this hidden research capital, the Kit Parade will enrich the traffic of ideas between schools, help staff discover techniques that could bring life to emergent research ideas, and encourage students early in their careers to look beyond the confines of their own subject.

What do students/staff do?
Over the course of a week several of the academic schools in the physical sciences and engineering disciplines open their doors to students and staff, and demonstrate the use of some of their more interesting equipment, or ‘kit’. Visitors are free to pick and choose what they attend from a timetable of demonstrations held around the University, none taking more than an hour.

Demonstrations during the pilot event in December 2009 included:

— 3D Face Capture, 3D Haptics, Human Motion Capture;
— 3D Seismic Laboratory;
— Engineering Centrifuge;
— Motion Analysis Laboratory;
— Hydraulics for Modelling River Flow;
— Scanning Tunnelling Microscopy & Atomic Force Microscopy (AFM);
— The Helix Semi-Immersive Stereographic 3D Facility;
— Molecular Modelling with Haptic Feedback;
— Media Resources Unit;
— Access Grid;
— Advanced Research Computing @ Cardiff;
— The School of Physics and Astronomy Half-Metre Optical Telescope.

Hot tips?

— Support for the event from academic staff is crucial. They run the demonstrations and put in most of the work.
— Prior to the event, allow plenty of time to locate suitable equipment by negotiating with schools and visiting them to judge what should be included.
— Give conspicuous advance publicity to alert everyone in the university that a major event is about to take place.
— Keep the timetable flexible during planning.
— Monitor and control the numbers of visitors attending each event.
— Provide visitors with clear instructions for finding the venues.

Does it work?

The event was successful in bringing researchers together from across the University in an informal environment.

Feedback was collected after the event by email, but only nine responses had been received at the time of writing from 51 subscribers. All respondents said that there should be another Kit Parade next year. Most approved of the event being scheduled across a week, although there was some support for a longer season with one event per week. The director attended most of the events, and informal feedback to him was very favourable, with participants finding the events interesting and of value to their current or future research.

The scheme succeeded in attracting bookings from students and staff in fairly equal numbers, including undergraduates. It was also successful in attracting visitors from outside the academic schools putting on the demonstrations. Only 11 of the 94 bookings were from members of the host schools, and all of these were from postgraduate students. In fact, about half of those who booked came from schools or departments outside membership of the Graduate School of Physical Sciences and Engineering, mostly in disciplines related to biosciences, medicine, psychology or computing.
As a result of the Scanning Tunnelling Microscopy and Atomic Force Microscopy demonstration, the School of Chemistry has been approached by the School of Biosciences with a joint research project in mind. Another outcome is that the School of Architecture is negotiating with several other schools about the possibility of using 3D imaging in student projects.

Issues and how have you dealt with them
This is a large-scale event to organise, given the involvement of several schools and members of staff. Fortunately the idea was supported by the participating schools, and there was a good deal of enthusiasm in volunteering for demonstrations.

There is a limit on the number of visitors that could be accommodated in some of the demonstrations, and some demonstrators set a minimum, so we asked visitors to book in advance. To ensure they did, event addresses were only given to people who booked.

There were 94 bookings from 51 people. Although some booked for several events, 35 booked for only one. We were hoping for about ten people per event. Four were poorly subscribed, one of which had to be cancelled. An average of nine people booked for each of the remaining events.

Because of the dispersed nature of the event, it was difficult to take a record of attendance or to collect feedback on the spot. Attendance was variable: good for some events, poor for others.

Promotion of the event was problematic, as it was difficult to target the relevant cohort. Although all students and staff were contacted by email several times in the build-up to the event, and directors of postgraduate student research in the participating schools were encouraged to promote it, a recurrent theme in both the formal and informal feedback was that the event was not sufficiently publicised. Many respondents said that they had learnt about it too late, and that others would have attended if they had known about it and understood better what it was about.
3.5 Closing the loop: bringing tangible benefits from cutting-edge research to undergraduate learning and teaching

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Context
This project aims to directly apply the latest cutting-edge information appliance research carried out by my research group, the Programme for Advanced Interactive Prototype Research (PAIPR), by making new techniques and hardware directly available to undergraduate and taught postgraduate students on a range of programmes within the Cardiff School of Art & Design. Its objectives are to:

— redesign components of the Product Design Programme’s curriculum to create an exemplar of tangible research to L&T benefits before using the lessons learned for possible roll-out to other programmes;
— deliver cutting-edge design and prototyping methodology capabilities to second- and third-year undergraduate and taught Masters students;
— increase the prestige of UWIC’s design programmes;
— improve employability of UWIC graduates, particularly in prestige posts such as those at blue chip companies and leading design consultancies;
— produce 100 (pat. pending) Bluetooth IE4 units for L&T purposes to facilitate the above.

What do students/staff do?
There are two stages to achieving the project aims:

1. Curriculum redevelopment. Redesign module delivery methodologies at both undergraduate and postgraduate levels to better exploit the new techniques
developed by the PAIPR research team. This would include redeveloped online resources and software support and a reworking of online tutorial support for both hardware and software elements as well as modification to lecture delivery.

2. **Implementation.** Use the IE4 units as core learning and teaching aids around which the curriculum will have been restructured in the second-year undergraduate Information Ergonomics module, third-year undergraduate major project and MSc Advanced Product Design major project modules.

**Does it work?**

Expected outcomes of the project include:

— *exemplar* of research-led learning and teaching;
— *revised curriculum* relating to the design and development of information appliances. The lessons learned will have likely applications in BA (Hons) Games Design and BSc (Hons) Music Technology;
— *improved employability* for UWIC graduates, particularly at the prestige end of a highly competitive market;
— *improved prestige* for the University as a result of our being able to demonstrate that we employ cutting-edge, patent pending knowledge in our course delivery;
— *improved international L&T links and recruitment.* One of the benefits of having units available for L&T purposes will be that during periods when they are not required for use by UWIC students they can be utilised as L&T tools in institutions with whom we have collaborative agreements such as the Malaysian Institute of Art and Korea University. To this end the School’s International Marketing and Recruitment officer has agreed to supply training in the use of the IE4 system to students in these institutions as a way of encouraging greater ties and establishing UWIC’s USPs over competing institutions.

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2 See www.paipr.wordpress.com/projects/the-ie-system/
4. Teaching and discipline-based research

How to link teaching and research knowledge and/or skills specific to a discipline is perhaps the most frequent scenario for an academic to confront within the research-teaching nexus. Although there are generic issues to consider within the nexus, applying them to the discipline context is not always straightforward. In this chapter, seven case studies demonstrate approaches to linking teaching and research in a range of disciplines: Law, Art, History, Acting, Sport Science, Religious Studies and Philosophy.

4.1 Linking discipline-based research and teaching and engaging undergraduates in research in Religious Studies and Philosophy

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Context  
Forty-seven pre-registered students for 2009-10 (also offered as joint honours with, for example, History, English, Creative Writing) on the BA (Hons) Religious Studies & Philosophy, School of Education at Newport. General context of good practice:

— All staff are research active and draw on their research to provide innovative learning and teaching activities.
— Students are encouraged to engage with the developments at the forefront of the discipline and to undertake research from year 1. For example, research skills are included in first-year study skills modules and students are encouraged to read journal articles included in study packs and posted on Moodle (VLE).
— The curriculum undergoes continual monitoring to ensure relevance and to encourage independent, enquiry-based learning: e.g. this year, level 2 has been restructured to incorporate a new module – Anthropology and Religion – which
will provide students with an updated set of research tools.
— All students take a work-based learning portfolio in year 2 (putting research skills into practice wherever possible).

What do students/staff do?
A particular aspect of innovation in learning is student research in the 'global village':
— All students undertake a module in which they conduct a faith visit, during which they find out about the faith and gain some experience of it (from tarot circles to pagan festivals). They then present their findings to the rest of the class, providing a fascinating experience for all.
— A further new module will be introduced at level 2 in 2009–10 – Research in Religion in Culture – in which students will participate in an ongoing research project to map the religious and cultural landscape of South Wales.
— In year 2 or 3, students are offered the opportunity to take a tailor-made ten-day study tour of North or South India. The trip encourages independence and confidence and well as enquiry-based learning.

Issues and how have you dealt with them
Possible issues that require consideration include:
— student diversity & equality;
— internationalisation;
— cultural awareness and competence.
4.2 Law in context

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Context
The emphasis is on fusing the tutor’s research with scholarly activity and in turn providing an opportunity for students to carry out their own small-scale research projects. Further by contextualising the subject-specific material, students are encouraged to set the law in context.

How is this done?
A new criminal law statute, the Corporate Manslaughter and Corporate Homicide Act 2007, is used to illustrate the legislative response to ‘corporate killing’. The module title is Law for Managers, a level 6 undergraduate programme delivered to some 60 students that forms part of the BA (Hons) Business degree. There are three deliveries to groups of about 20 students. The module considers a number of aspects of the law that are relevant for those holding managerial positions.

What do students/staff do?

Tutor activity – Prosecution under the Act comes about as a result of a grossly negligent breach of a relevant duty of care by certain organisations, most commonly those with corporate status. The background to the Act, which was passed to remedy deficiencies in the common law, is explained using a number of leading cases. Students are aware of the regulatory framework surrounding health and safety and the link between lapses in the duty of care and health and safety breaches is emphasised. The effectiveness or otherwise of legislation is currently a central research interest of the tutor. A number of academic papers and media articles written by the tutor together with the work of other commentators are used in a limited way at this stage to highlight some of the issues.

Student activity – Students are asked to form small groups of about five members and to consider the legislation from a number of perspectives. They are encouraged to examine the Act by positioning themselves as specific interests group. In this ‘infusion model’ they configure and act as trade unionists, politicians, company directors,
employees or pressure group representing victims' families. Each group adopts their chosen stance and carries out a small-scale literature review reflecting that viewpoint. Using Hansard, case law and commentaries, consultation documents, Law Commission reports and other relevant material they are then asked to present their findings via a ten-minute presentation. At the end of each presentation their peers can comment and ask questions. The debate engendered allows the students to evaluate the perceptions of the interest groups and assists with a critical analysis of the legislation.

Hot tips?
The delivery at the outset involves some ‘Socratic’ teaching but it is important not to supply the students with a comprehensive list of sources. The emphasis is on contextualising the law and allowing students to carry out their own research.

Where tutors use their own research as a basis for teaching there is a temptation to ‘over-teach’ and thus present students with a ready-made viewpoint on the efficacy or otherwise of the law. This must be resisted as the emphasis is on the student as the critical thinker. While the tutor’s own work can inform it should be used sparingly to allow the students sufficient autonomy to frame their own conclusions.

4.3 A journey through space

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Context
Foundation Diploma programme or year 1 of a degree programme in an art school. This project is a first step towards developing an inquisitiveness in students essential to any research activity. It encourages students to recognise that their ontological constructions of the space/time continuum are in fact inherited through cultural conditioning. This awareness frees them to explore the cultural constructions of other
cultures through the analysis of the various systems of geometries developed for the
purpose of representing space/time relationships in drawings and paintings.

What do students/staff do?
There are three stages of activity:

1. Through slide-talk and discussion, the tutor introduces a variety of geometries
   employed in a variety of cultures, past and present, in order to represent 3-D space
   on a flat 2-D surface. The central message is that art forms (in this case specifically
drawings and paintings representing space) are visual evidence of the society’s belief
system concerning the human perception of space and time. Students are encouraged
to research a number of cultures other than their own, systematically recording images
representing aspects of space, such as landscape vistas, interiors, mapping terrain, the
positioning of figures in space and so on. This requires a) the application of information
retrieval skills including library searches, internet image banks and gallery visits (this is
a practical introduction to the first stages in any research process: the finding, collating
and structuring of information from a variety of sources); and b) recording skills such as
freehand drawing and digital image capturing (photographs, scans).

2. The student develops skills of visual analysis and a deeper understanding of systems
   of geometry. This stage implies research into the various systems of geometry
available to artists and research into strategies of formal analysis. When appropriate,
simple visual semiotic analysis techniques are introduced. The advantage of this is
that the student picks up such knowledge at a time when it is of immediate use.

3. Released from the confines of their own ontological constructions, students are
   encouraged to invent alternative ways of representing space (and figures that
move through space) through their own drawing practice. In this way, students
apply the findings of their research into the representations of space in their
own creative practice.

Hot tips?
Prepare clear visual examples that illustrate the variety of ways of representing space and
time; for example: a Renaissance painting in artificial perspective, which visually expresses
the belief that Man is centrally placed and views the world from a static position through
monocular vision; a Japanese drawing from the 14th century, in which the viewer is
assumed to move around the spaces and buildings, which are depicted from a variety of viewpoints; a Cubist painting, in which the subject matter is assumed to remain static, while the viewer moves around, superimposing the accumulated views; or, an Australian Aborigine painting, in which the human figure is integrated within the overall painted pattern of land, visually expressing the cultural belief of ecological balance.

Does it work?
Student feedback indicates their acquisition of a broader awareness of the variety of geometries. In turn, this awareness allows students to design and develop further research inquiries into the relationships between visual representations of all kinds and the underlying belief systems they embody.

Issues and how have you dealt with them
Resource issues/relevant web resources – access to basic drawing materials; access to the internet search engines and image banks (at SMU we subscribe to one of the largest: the Bridgeman database). Familiarity of such powerful databases enhances students’ capacities for research.

4.4 Collecting Egyptian Antiquity

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Context
Compulsory module for the MA in Ancient Egyptian Culture small seminar group: seven students (2009–10). Collecting Egyptian Antiquity explores the issues surrounding the formation of collections of Egyptian antiquities. It includes the creation of public museums and private collections. There are aspects of professional responsibilities such as publication and the use of the web interfaces for archaeological projects and museums.
There is a strong ethical element that looks at the impact of looting on the archaeological record (‘material consequences’) and its interpretation (‘intellectual consequences’). The course also considers the display of human remains and the issue of creating forgeries.

The module is assessed by three pieces of continuous assessment. One aspect of the assessment relates to the analysis of recent (post-1998) sales of Egyptian antiquities at a major New York auction house. The students study the collecting histories (‘provenance’) of the pieces to see how much material being offered for sale was documented prior to the 1970 UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property. It also gives them an opportunity to research the collectors behind the sales.

What do students/staff do?
One of the student exercises is for students to select a single Egyptian object and write a short report on its creation, original function, collecting history and (where possible) archaeological context. Most students select a piece from the University’s Egypt Centre that includes material collected by the pharmaceutical millionaire Sir Henry Wellcome (1853–1936). These projects allow students to undertake basic research that can help to develop the resources of the museum.

The module is based on a long-standing research project, ‘The material and intellectual consequences of collecting antiquities’, with Dr Christopher Chippindale (Museum of Archaeology and Anthropology, the University of Cambridge). Published research has appeared in a number of locations including the *American Journal of Archaeology*, the *International Journal of Cultural Property* and the *Journal of Field Archaeology*. Gill is a member of the editorial board for *Art Crime* and has a regular column (‘Context Matters’).

Hot tips?
The module makes use of a number of Web 2.0 technologies. There is a module blog embedded within Blackboard. Students write summaries of seminars and share ideas. Short presentations are brought to seminars on flashdrives and these are used during the session. There is a research blog (‘Looting Matters’) that delivers ideas, issues and stories via RSS feeds and email subscription. (‘Looting Matters’ also has a weekly press release delivered by PR Newswire as part of the ‘Blog Briefs’ new media project.)

Does it work?
The module can respond to trends in collecting. In October 2009 the students were looking at the way that public museums develop their collections. This coincided
with Egypt’s claim on a number of pieces in the Louvre that had turned into a major diplomatic incident. The class was able to explore the possible collecting histories and come to a view on the ethical policy of the museum. Within hours of the seminar the French Minister for Culture announced the return of the pieces that appear to have been removed from a recorded tomb at Thebes. Such a case study helped students to see how their studies related to contemporary issues in collecting.

One of the case studies has been to study the acquisition of the ‘Amarna Princess’ by the Bolton Museum. This sculpture turned out to be the work of a gifted forger who had been passing a range of material onto the market. The students were able to explore how a believable collecting history had been created for the piece. The forger and his parents have been convicted; this has allowed students to understand the legal implications of such criminal activities.

4.5 Problems and practice in ancient Egyptian material culture

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Context
Problems and Practice in Ancient Egyptian Material Culture is module (CLE312) in the Department of Classics, Ancient History, and Egyptology, comprising 8-12 level 3 Egyptology students for one semester. Grading: data reports (30%); presentation (20%); final project (50%).

What do students/staff do?

— My recent publication focuses on daily life in Lahun, a settlement in Ancient Egypt.
— The goal for the students is to reconstruct life in that site based on the primary evidence. It is based upon and feeds back into my research.
— Each week focuses on finding information on a particular theme such as:
  — childhood;
  — trades and crafts;
  — sickness and healing, etc.
— Each week each student is allocated a particular dataset. Either:
  — text publications (in translation):
    — online or print;
  — artefacts (through online museum databases and our local collection: the Egypt Centre);
  — excavation reports:
    — online or print.
— The datasets rotate, so that each week each is covered, and each student has the opportunity to engage with every data type.
— Each week, each student is assigned a specific excavation report, museum collection, or text set to analyse in relation to a specified aspect of life in Ancient Egypt. Each ‘expert’ submits online an analysis of the data and preliminary conclusions based on their data plus one (or more) of the assigned readings. These can be written up in bullet points, tables, spreadsheets, etc. and should be no more than 500 words. They must include at least one question associated with the readings and/or their research. Analyses must be systematic and specific (i.e. instead of saying ‘lots of pots’ they must note how many, use percentages, statistics, note the context, etc.). The reports form a basis for their final project.
— Detailed feedback is given before the next class.
— The papers are available online to all members of the class after each deadline. One paper is designated as the winner of the week, so that weaker students can have a model of better work.
— Individual findings are discussed in class every week. In class they work in pairs (rotated every week so that students work with different individuals). In this way, they become directly aware of the fact that different types of evidence may yield different results, and the problems with interpreting that evidence.
— Each pair then presents a summary of their findings to the rest of the group.
— Students engage in the process of scholarly collaborative discussion over the possible interpretations, and the strengths and weaknesses of the evidence.
— They know that this will feed back into my research (and students have already been cited in publications), and this encourages them.
Does it work?
Students actually do the research, rather than simply read about it. They critically and systematically analyse the primary sources, and provide interpretations rather than simply “regurgitating information” (as one student noted). This is extremely effective, and the feedback by the students shows that their academic skills are developed, and they apply it to their other modules (most notably to their dissertations.)

Issues and how have you dealt with them
Perceived increase in amount of work: Rather than passively listening, each student must engage with the evidence every week. However, because this means that every week they are analysing data that they need for their final project, they eventually realise that when it comes to writing up that project, all the analysis, synthesis, reading and interpretation has already been done.

Marking: For some themes, particular types of data provide more or less information than others. Students also tend to improve in their analysis over time. The best solution has been to count only the best five out of nine reports upon which to base the grade.

4.6 Enhancing teaching and learning through research: current school project with Acting students

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Context
My work during March and April 2008 involved a significant research project on Brecht’s play The Exception and the Rule. This project forms the centrepiece of the level 5 Acting students’ work on Expressionism and Epic Theatre. The project has involved preparatory research work into the music of Paul Dessau. Dessau wrote
the play’s music in 1948 but it does not appear to have been performed in the UK. I located it and, with John Quirk, we have prepared the score for the students’ voices and presented the play in the week of 21 April. The production history of the play has also been researched, in particular to ascertain the number of amateur and professional productions done with alternative music or without music at all.

What do students/staff do?
My research aim has been to offer the students a learning opportunity, through their rehearsal, personal research and performance, to perform a pretty rare Brecht piece as the author and composer intended. It is certainly infrequent for Acting students to encounter these works in their full form. It is far more likely that they will have acted merely the dialogue and had, therefore, a stilted impression of the true nature and power of these works. In this way, my research and preparation is feeding very directly – and, I hope, powerfully – into their educational experience.

Does it work?
The research project also offered quality enhancement to the School’s students through its open performance, and to the wider College’s cultural activities through the play’s inclusion in the Trinity Arts Festival Ffrinj in June.

4.7 A case study approach to teaching the physiology of adaptation to altitude

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Context
Sport and Exercise Physiology is a level 3 module in the Cardiff School of Sport that has approximately 90 students enrolled. This module is an optional module for students
on Sport and Exercise Science, Sport and Physical Education and Sports Coaching programmes. Each student is required to attend a one-hour lead lecture and a one-and-half-hour laboratory practical each week.

**What do students/staff do?**

A case study approach to teaching altitude physiology was introduced as this is known to encourage active learning, which enables students to learn more effectively (Sivan et al., 2000; Tan, 2004). The case study was based on data collected from a participant of the Xtreme Everest research expedition to Everest Base Camp in 2007. It was taught by a background lecture and two tutorials, and knowledge was assessed by short answer questions related to the Everest Base Camp trek and a 1,000 word literature review on altitude training. The case study was evaluated by a modified Student Assessment of Online Learning Gains (SALG) instrument to investigate students’ perceptions of their learning gains.

**Hot tips?**

Developing the case study from a topical research area that I had a personal involvement with increased the interest for the students and also provided more information to make the topic more interesting such as real data, websites, videos, etc.

**Does it work?**

The case study was an effective method of teaching and this was demonstrated in a number of ways:

- **Attendance of students** – lecture attendance at 87% and tutorial attendance at 82% was significantly better than attendance in previous years.
- **Coursework marks** – the standard of the coursework was high with a mean coursework mark of 62.1 ± 10.7% achieved by the students. 21% achieved a mark of >70% and there were only 4 failures.
- **Evaluation of the case study** – the response of the students in the evaluation was positive with 59% of students stating that the case study had helped them a lot with their understanding of altitude physiology, 40% stating that it had helped them a lot with critically reviewing articles and 54% stating that it had helped ‘somewhat’ with problem solving.
Issues and how have you dealt with them

Although the case study was successful, there were areas that needed improving and these changes were incorporated into subsequent years of teaching. Sessions needed to be more organised to make the most of the time available and improvements were also needed in my effectiveness as a facilitator, something which Tan (2004) highlighted as one of the major factors in the student experience. The case study was extended to three lectures and two tutorials to enable more time for students to become familiar with the topic and give them more time to read the research articles. These changes were made in response to feedback from several students who felt that the case study was ‘a little rushed’ and were necessary to ensure that all students had a positive learning experience from the case study.
5. Student research in community and work-based contexts

The majority of case studies presented in this book are examples of linking research with teaching in academic settings; however, with community and work-based learning increasing within higher education curricula it is important to recognise the potential for student research within these contexts. This chapter presents five case studies that include examples of research-informed teaching, and community and work-based student research, at both undergraduate and postgraduate levels. Given the significance of these contexts on the higher education agenda at present, further discussion of community and work-based research would be a welcome development.

5.1 Front-line research: Teaching Assistants on a foundation degree programme carry out research in their own work settings

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Context
Foundation degree in Learning Support; module title: Research in Action; level: final year of part-time foundation degree (level 5). Students engage in a two-part research process:

1. half-day ‘job shadow’ visits to a fellow student’s school collecting data on a topic of mutual interest;
2. an individual research project within their own work setting on a topic of choice.

The groundwork for these activities is laid through research methods lectures and planning/tutorial time.

A module handbook is issued to students and support materials are also provided to students via Blackboard (VLE).
What do students/staff do?

These two components of the Research in Action module are designed to:

— enable students to develop an understanding of the role of research, including practitioner research, in education;
— enable students to use their developing awareness and understanding of different research methods to design and carry out a small-scale research study.

The module title is both descriptive and prescriptive: students are to engage in research into their own current work situation, in the tradition of action research, but – due to time and other restraints - without the ongoing cycle that model suggests. The module also serves as an introduction to research for those who intend to top up their foundation degree to a full Bachelors degree; at SMU the research module in the top-up to the BA in Educational Studies (a joint degree with Counselling) accounts for 30 of the total 60 credits available for the Educational Studies half of the degree.

**Paired job shadow:** Teaching content for this first element of the module includes basic research methods, research ethics and practical considerations of conducting research in the complex and dynamic classroom environment. The instructor pairs students largely according to geographical location (the catchment area for the programme includes six LEAs so students’ schools can be spread over a large area), and discourages students working in the same school from pairing up for this assignment to provide a broader array of classroom practice (Teaching Assistants are no different from teachers in this respect – they rarely, if ever, have the opportunity to experience other schools/classrooms). A letter is sent to schools to remind them that students will be carrying out the job shadow, which takes up one of ten days during the year when schools have agreed to release the students to attend SMU. Students’ in-school mentors are also informed of the job-shadow during a prior training day in college when upcoming modules are reviewed. During class time, students work in agreed pairs to discuss a focus for their research, data collection methods, timetabling of job shadow (students are given a two-week time period in which to complete the actual visits to each other’s schools). Instructors are on hand during this time to provide support for this discussion and to advise. Subsequent to the job-shadow visits, the instructor elicits feedback from the whole group on the issues that have arisen during the visits. Students are also given time to jointly evaluate their findings and write reflective conclusions. The assignment is submitted on a pro forma provided by the module instructor. This pro forma requires students to provide details of their school setting, and to summarise data collected. It also requires them to reflect – singly and jointly – on the
similarities and differences between their work settings, and on the data from the two 
schools. Students are encouraged to select two simple data collection methods – informal 
observation and brief questionnaires are the most commonly selected methods.

Individual research projects: Teaching for this element of the module builds on the 
job-shadow, reviewing and adding to research methods, including consideration of how 
to formulate a research question, ethics, reliability and validity, and with an emphasis on 
conducting/reporting a literature review, and data analysis and reporting. Students are 
provided with examples of research reported in professional journals, in order to identify the 
research question, the research methods, and the data analysis and presentation methods 
used in the studies. Students have approximately two months to complete their research 
project and submit their reports. They are required to use more than one data collection 
method, but can choose to conduct either intervention or investigative research. Assessment 
is based on a 4,000-word report, using standard section headings (Introduction, Literature 
Review, Methods, etc). Assessment criteria are included in the module handbook and the 
instructor stresses the importance of these criteria rather than the ‘success’ of the research.

Hot tips?
Several issues arise with each new cohort of students:

— the limited scale of the individual research project in relation to both scope and time 
available (students generally have great difficulty focusing on a discrete area of interest; 
they also often want to engage in research that addresses changes over time);
— drawing modest and reasonable conclusions, derived directly from the data (this is an 
issue both of interpretation of data (misreading results and extrapolating beyond what 
is reasonable) and of precision of language (where actual interpretation of results may 
be accurate, but vocabulary selected to express that interpretation is inappropriate));
— the distinction between actual and perceived situations (students will often want 
to survey parents or other stakeholders in order to determine effectiveness of a 
programme, for example, but couch their results in relation to actual rather than 
perceived effectiveness).

These issues are addressed during college classes.

Does it work?
Feedback from module evaluations completed by the third-year students suggests that 
the research project – although considered difficult – is both interesting and useful to
students, and often to their schools, as research data can be used to feed into school reports, improvement plans or inspection preparations. Also, student research conducted for this module was featured in a 2009 issue of Learning Support – a publication for Teaching Assistants working in primary schools (see www.learningsupport.co.uk).

Issues and how have you dealt with them

— **Timing of the module.** There is no ‘best time’ for teaching this module, as it is quite demanding and all students are concurrently working as Teaching Assistants. So although the issue of timing arises each year, there really is no ‘better’ timing available.

— **Lack of background reading.** Again, because students work and study they often only have time for minimal background reading – largely in connection with assignments. This can create some difficulty conceptually when they are required to write the literature review for their research report.

— **Distinction between results and analysis/discussion.** Many of our students come to us from a background of vocational education (their most recent qualifications prior to the foundation degree most commonly being NVQs) so their critical thinking skills are not well honed. With relatively short allocations of teaching time and the reluctance of some students to ask for help, this underdeveloped thinking is rather highlighted by the requirement to conduct and report research.

— **Leadership issues.** The Research in Action module has always been accepted as part of the course, through initial and revalidation of the programme. It contributes to the constructivist approach to teaching/learning, which is the underpinning philosophy of the foundation degree programme at SMU. It also supports a subsequent module, Leading the Learning, as students come to see themselves as learner/researcher and conduct further small-scale research into colleagues’ perceptions of their roles in learning communities. It also builds on the year 1 module Methods of Enquiry, linking with the principles of formative assessment in the Learning module (also year 1).

— **Resource issues.** No particular resource issues have been encountered to date. Time is always an issue with our students as the foundation degree is work-based and the majority of our students are working women who also have family responsibilities. However, this module is not necessarily more demanding in this respect than other modules of the foundation degree programme.
5.2 Action learning (AL): research and practice development in community nursing

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Context
Two modules, Research and Practice Development (PD), run almost concurrently from October to April as part of the one-year full-time course for experienced nurses (health visitors, school, district and community mental health nurses) wishing to work in community settings. Both adopt action learning as the primary education medium, supplemented by lectures, seminar presentation, library and electronic modes of study. Action learning involves facilitating groups of between eight and 14 students who engage with theory and literature relevant to their practice experiences in cycles of appraisal (of theory), action in practice followed by reappraisal leading to understanding of relevant interrelationships. In both modules, this action learning approach requires students to actively search and appraise literature for use in practice (application) with ongoing personal and collective evaluation of experiences and learning – meaningful learning. The ‘doing’ (practising) is twofold: i) critical appraisal and ii) selective practice application and evaluation. These elements are not seen as separate, but interdependent, contributing to a praxis ethos (Jenkins et al., in press; Surridge et al., in press).

What do students/staff do?
In the PD module, groups of four to six students attend AL sets (of three to four hours) and search, select and appraise in use evidence that improves (develops) an aspect of their nursing practice. Teachers facilitate each AL set to promote challenge, critique and support. These learning/teaching processes are characterised by action (not passivity) and reflexivity (not mere information exchange). The teaching team used first-person inquiry (Marshall, 2001; Torbert, 2001) to research their own education practice as the PD module ran (in 2007–08) and then co-operative inquiry (Heron, 1996; Heron and Reason, 2001) post-course, involving clinician mentors and former students.

In the Research module, teachers/facilitators follow seminar presentations of their own research work (effectively acting as exemplars) with action learning sets
designed to assist student appreciation of method and methodology; again, in relation to community health practice.

Hot tips?

— Facilitation skills are essential to ensure high-quality linking of research/literature appraisal with practice application and ongoing evaluation.
— Pitfalls of merely regurgitating information, moaning and pursuing relatively insignificant (hobby-horse) issues must be constantly made explicit/challenged.
— Creativity by students requires teachers to be open to unanticipated or new ways of expression, including assessment presentation.
— Collective facilitator debriefing assists teacher development, reflexive appraisal and continuity for student experience.

Does it work?
Yes – students typically grapple with and then excel in critique and evaluation that illustrates a praxis orientation to their work and development (i.e. they are able to critically appraise and integrate evidence to their practice contexts). Several students have undertaken research into nursing practice either post-course or for Masters completion (e.g. i) nurse prescribing and ii) emotional intelligence (Young, Jenkins and Mabbett, in press)).

Issues and how have you dealt with them?

— Validating practice elements – CPT (practice-based mentors) involvement is crucial.
— Differentiating the ‘creative’ from ‘different’ and awarding academic value/credit to unusual assignment work requires effective communication (rather than ever-increasingly sophisticated criteria) and a collective approach to marking/moderating and use of external examiner(s) (Surridge et al., in press).
— Individual teachers/facilitators being faced with research and methods outwith their expertise – collective dialogue, support and inclusion of additional colleagues (teachers) with relevant expertise as resources ‘in-between’ AL sets help alleviate this.
5.3 BeWEHL (Bettering Wellbeing, Education, Health and Lifestyle Initiative) – linking research and teaching in community education

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Context
The Bettering Wellbeing, Education, Health and Lifestyle Initiative (BeWEHL), began in 2000, supported by Welsh Assembly Funding (WAG) to look at the impact of learning on the health and wellbeing of women in a marginalised area of Newport, South-East Wales. Using a social action research approach the project used a collaborative, co-researcher approach, working with women building trust and support as well as, through collaborative research, designing curriculum and a pedagogic approach tailored directly to the needs of the women and the broader community.

This approach has required a different, if not alternative approach to providing education pathways and promoting inclusion, in that the curriculum is learner led through research and designed to accommodate the needs of each individual within the project. Providing a research-based framework means that students can identify for themselves an area of interest they would like to ‘find out about’ and are supported through the accredited research framework to complete a study. This approach has much in common with the dissertations that final-year undergraduates are required to submit.

While BeWEHL is focused essentially on building the confidence, aspirations and efficacy of its ‘co-researchers’ or participants, narrative analysis, action research and ethnographic approaches, together with providing support within a research framework has given traditionally hard-to-reach disenfranchised participants the opportunity to learn and develop in a manner and way that suits the individual.

At the same time, taking into account the individual’s life world as a factual situation that learning has to fit in with, or be tailored to, means that individuals who would not normally have engaged, or consider themselves as having the capacity to study at HE level, allows staff to work with the whole person, working to support difficulties in their personal life as well as supporting their learning need. This approach has been essential in allowing individuals to reflect and access for themselves their own aspirations, and how the social and cultural background they come from has impacted positively and negatively on them, and their lives.
What do students/staff do?
One of the project’s core aims has been to identify potential progression pathways for those who would not normally include themselves in post-compulsory education, and who have underachieved for whatever reason. BeWEHL does not work to the 12-week delivery schema as this would be inappropriate given the degree of support required to work with many of the participants from a life-world approach. Rather, provision is very flexible, reflexive to the individuals needs by working with all learning needs. While the model is unaccredited to begin with, more than 90% of those who engage with the unaccredited work progress to module offers between five and 20 credits at level 4. Working on a case-by-case basis, learners can progress directly to a degree after discussion with the relevant University school.

The project works in a small group situation, both on campus and in community providing crèche and transport where required. The teaching approach is non-traditional in the first instance, in that the focus in the early months of engagement is to achieve engagement and retention, working with individuals to identify personal barriers and limitations, as well as social and cultural influences, that might limit their ability or wish to re-enter education. Following this period, the group are supported to undertake a research project on a topic identified by them that is relevant to them and their community.

Hot tips?
The innovative and inclusive approach taken by BeWEHL within the research framework ensured its success in its original community, and gained European Social Funding (ESF) to extend the work across the Newport area and also, importantly to test the model developed in relation to its transferability, reliability and rigour. The project continues to work successfully across South-East Wales with participants (now including men and BME groups) providing innovative pathways and progression routes to degree-level study and improved employment opportunities for excluded/marginalised groups such as single parents, unemployed people, women who have suffered domestic violence, and those with long-term health problems.

Does it work?
Over its lifetime, BeWEHL has supported learners so that they have been able to take advantage of improved work opportunities and substantially higher incomes than could otherwise have been achieved, credits at HE level 4, active volunteering in a community situation (100%) and a curriculum that provides a tailored pathway to degree-level study, with (at present) 25 students accepted or having achieved a degree of their choice.
Issues and how have you dealt with them

By its nature, addressing the barriers to inclusion, such as crèche, transport, development of relevant approach and the support required means BeWEHL is, in the short term, an expensive project to support; therefore a project such as BeWEHL will always be dependent on public funding of one type or another. Currently the project benefits from Widening Access Funding through HEFCW, with elements of the work supported by the University through core funding. However, over the medium to long term, learners do effectively engage with work at a higher level than had previously been possible and the impact on their personal efficacy means that the multiplier effect changes the culture of non-participation and resistance to education and higher education. As the project approaches its tenth anniversary, we have the opportunity to measure the impact of the ripple effect on the children and families of participants, and early indications are positive with many participants’ children engaging in education and training in different ways than might otherwise be expected.

5.4 Communities of interest: the value of a teaching lens on research activity

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Context
Research is an iterative process of discovery and explanation (Denzin and Lincoln, 2003) so it is not surprising that a close relationship exists with the more participative environment of the classroom. This is even more so where the research being undertaken forms the basis of a taught doctorate whose principle rationale is the contribution to management practice as well as the more established development of
knowledge. Therefore, this case study offers a reflection of the way that a study into the relationships evident within a range of companies involved within the organic food sector in Wales informs, and is informed by, current teaching on a Masters programme. A brief outline of the research themes sets the context of the study before the teaching considerations are explored. Finally, a summation of the experience is set out to frame the interaction between the two activities.

What do students/staff do?
Establishing a research aim is a series of considerations and discussions involving a range of varied individuals supporting the researcher. The evolution of the study, examining communities of interest and the ‘power with’ notions of relationships between actors, has been shaped to a degree by teaching the relevant underpinning themes to Masters students. Alongside the obvious benefits of bringing the case study material generated by the primary data gathering into the classroom setting, the teaching experience of the researcher helps inform the approach to research as a whole. The thematic structure of the doctoral thesis has been shaped by the pragmatic concerns of drawing lessons from the interpretivist sense of social construction inherent in studies of relationships (Gergen, 1994; Potter, 1996). Thus, the understanding of power dynamics as a more positive force than traditional notions would imply (Lukes, 2005) presents an opportunity to draw out the characteristics of shared philosophy or ‘interest’ as espoused in the thesis. The concept of a ‘community of interest’ deliberately builds on the foundations of ‘communities of practice’ (Wenger, 1998), but seeks to move away from the largely knowledge and learning perspective of the latter into a consideration of aligning motivations and the identification of community member types.

Does it work?
The experience of structuring and presenting the theoretical frames, informing the study, to an external audience offers a practical but powerful mechanism for contextualising the nature of the research and the value that can be derived: a welcome beacon of light during the inevitable frustrations of a study finding its way in the world and its place among the discourses available. The reasons for this appear to be twofold. Firstly, the discipline of structuring the module content and the forms of delivery require a conscious examination of the theoretical foundations of the material to be utilised. This provides a filter that exists within a typical research process, but places it under a scrutiny that affords a divergent perspective to be considered. Secondly, the delivery to an active and inquisitorial cohort enables the generation of multiple
conversations centred on the basis of the research. The potentially contradictory sources of such conversations not only illuminate the understanding of the theoretical frames, but sharpen the senses of the researcher to the subtleties of the material that can strengthen the subsequent analysis.

Issues and how have you dealt with them
The symbiotic relationship that can exist between the research process and the teaching environment affords significant opportunities for learning. However, it would be misleading to see these as given certainties, as the degree to which both can be developed and informed must lie in the hands of the varied individuals who comprise the specific contexts. Thus, it may be more compelling for further consideration of the individuals and the degree to which they are able to foster the relationship between the overlapping activities of research and teaching.

5.5 Undertaking work-linked research in doctoral studies
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Context
Part-time doctorates are appealing to students who wish to undertake a PhD while pursuing a career, or who for other reasons, such as personal or financial, are unable to enrol as full-time students. For those in employment, there are advantages in undertaking research in the workplace, where appropriate, either as part of a university–employer agreement (e.g. Knowledge Transfer Partnerships, KTP), or as a professional qualification (i.e. professional doctorates), or simply to undertake research that will be of benefit to both the employer and researcher. It is this last under-researched scenario that this case study explores, where the doctoral research is linked in some way to the student’s employment, and may be work-based, but is not
a KTP or regarded as a professional doctorate (Boud and Tennant, 2006). Although this case study is focused on doctoral research, it could be transferable to undergraduate research undertaken in the workplace.

What do students/staff do?
For several years, where appropriate, the senior author (SKH) has suggested that part-time Geography PhD students consider linking their doctoral research in Geography with their employment. Employers have included secondary schools (where the students are employed as Geography teachers), the Environment Agency, the Hydrographical Office and an archaeological company. In some cases the links are explicit and in others they are more opaque to begin with, but often develop to become more meaningful as the research progresses. Students open a dialogue with their employers who often support the students by considering their research as part of, or linked to, their duties and professional development, sometimes allowing alleviation of time and provision of resources.

Hot tips?
Suggest that students open a dialogue with their employers prior to, or in the early stage of, their studies. Explore with the employers if professional development resources may be used to support the student, in relation to time or other resources. Suggest that students keep employers informed of overall progress.

Does it work?
There are both positive and negative aspects to work-based doctoral study as indicated in this reflective account by FC, who is undertaking a Geography doctorate linked to her employment in an archaeological company:

People always tell me I am lucky doing my PhD research on the site which I also work, sometimes however I am not so sure! Firstly, a bit of background, my PhD research site is part of Walpole Landfill site; it is an active archaeological site due to groundwork’s being carried out to create more room for Somerset’s rubbish. In previous years (2005-2008) I worked as an assistant on the site, while I started my PhD in 2007. Last year (2009) I ran the watching brief work, meaning it was generally just me watching construction workers dig their very large holes. This was the context within which I took my samples for palaeoenvironmental analysis.
I would like to start by looking at the positive aspects about working on your PhD site. Firstly there is a certain amount of funding already in place as some work needs to be carried out as part of the planning process, a good example here would be the radiocarbon (RC) dates I obtained. The RC dates were taken for archaeological purposes but I could utilise them for my research too. Secondly on the same note evaluation work had already been carried out on the site, so my methodology already had some precedence. Owing to the fact my research adds to the general understanding of the site my bosses are more flexible about time off for university work. Lastly, time spent on site (especially standing watching a machine!) can be time spent thinking about possible theories.

So to the negative; firstly, funding may not be directed where you would like it, plus as with any work situation, there may be pressure on you to finish your research quickly so the information may be used in reports etc. The last negative point is about intellectual property rights. It can be very difficult to keep unpublished findings to yourself or to be correctly referenced when any information you have discovered, or theories you have formulated, are discussed at work.

This is my personal experience and I have found that at first the positive outweighed the negative but as time progresses the negative aspects become more important.

Issues and how have you dealt with them
From this account it is clear that intellectual property is an issue, which should be dealt with at the outset of the study through institutional procedures, so that any disputes may be resolved. Also, ethical issues require consideration, with the involvement of employers in evaluating ethics. It is clear that careful negotiations at the start of any work-linked study should be conducted between the stakeholders.
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