

**Research-
Led
Education
at the
University
of Exeter -
Moving
Forward
for 2012**

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**Education
Enhancement**

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1 Research-led Education and the University of Exeter vision

The notion of research-led education is integral to the **University's strategic vision** as we approach the new, post-2012 era of higher education:

'students benefit from – and want to be taught by – academics at the leading edge of their fields. Thus high quality research-informed teaching is our aim.'

Vice Chancellor Steve Smith, University's 2011 Strategic Plan

The 2010-15 Education Strategy develops this theme:

As a leading research intensive university, we firmly believe in the central importance and value of research in enhancing the student learning experience. Through a research based curriculum, we provide our students with the opportunity to share the excitement of research and of extending the boundaries of knowledge. And through research inspired teaching and assessment, we encourage and enable our students to develop valuable skills of critical and independent enquiry. Research based teaching ultimately sustains the country's intellectual and creative capital.

The University of Exeter draft **student learning partnership** also puts research-led education at the centre of student entitlement:

As a research intensive university, research is at the heart of all we do. It drives our work, aids your learning and informs our teaching. We want you to be able to share the excitement of research, of working alone and with others to think, challenge and extend the boundaries of knowledge... You will have opportunities to work with internationally renowned researchers who are tackling some of the key challenges of the 21st century.

The core principle underpinning the notion of the research-led education we provide is a simple but fundamental one: a rich community of cutting edge, international researchers is best placed to enable students to learn in research-like ways, with the highest academic rigour, so that they come to think, analyse and practise skilfully, as the best researchers do.



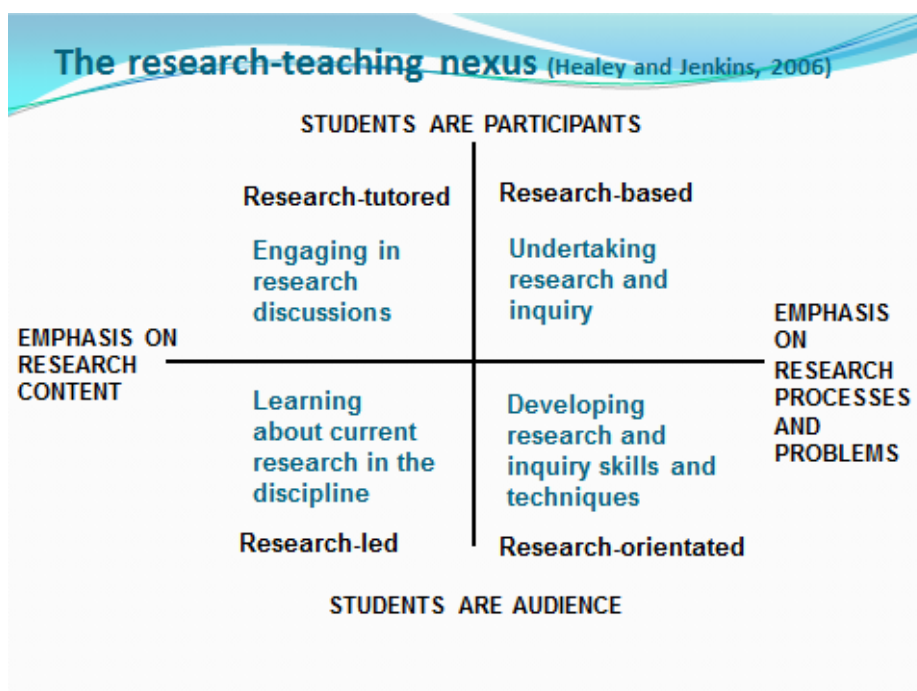
To learn in the way that a researcher does is to learn actively, critically and creatively. It implies an advanced understanding, by the learner, of the limitations of knowledge in any subject area, and of the importance of peer-reviewed evidence and logical argument, which are always open to critical evaluation and revision. Our excellent students should be aspiring to the highest level of academic rigour, afforded by a research-led approach. The antithesis of this excellence would be a teaching and learning relationship based upon the notion that knowledge is fixed and can be transmitted, unquestioned, to a passive learner. The networks of international subject and interdisciplinary communities represented at the University of Exeter create an environment in which traditional and new subject disciplines, the 'academic tribes and territories' (Trowler and Becher, 2001) of higher education, can flourish through collaborating with and challenging one another. They provide an ideal environment for cultivating advanced understandings and skilful practices within and across subject boundaries.

2 Theory into practice

- a. Maria: experiencing research as curriculum content
- b. Carlo: experiencing learning as practising research
- c. Identifying the full spectrum of high quality practices
- d. Direct links with graduate attributes, skills and employability

The educational theory relating to research-led education suggests that there is a spectrum of ways in which institutions can characterise, and indeed practise, the research-teaching nexus. Healey and Jenkins (2006) summarise four dimensions. They are research-led and research-orientated teaching, in which students learn from staff about current research in the field, and research-tutored and research-based learning, in which students are co-participants in research and inquiry.

Fig.1 The research-teaching nexus



To cut through the sometimes confusing range of terms here, we might use the term 'research-led education' as an umbrella term for all of the ways in which education – the teaching *and* the learning - can be enriched and infused by the findings, principles and practices of research. But what does research-led education mean to an individual student?

2a Maria's story

Emphasis on research content: Maria's experience

- Maria attends classes where latest research in the field is shared and explored
- She selects option modules to follow up on individual areas of specialist interest
- She discusses implications of latest research for limitations of knowledge in her own subject area



The image block contains three photographs. The top photograph shows a young woman with long dark hair, wearing a blue sweater, sitting at a desk with her arms crossed, looking at a laptop. The bottom-left photograph shows a large lecture hall filled with students. The bottom-right photograph shows a group of students sitting on the ground outdoors, engaged in a discussion.

Maria, like many students, has the opportunity to hear about academics' own research, and about the latest research more widely in her subject field, within the curriculum. As she progresses through her degree, she has more opportunity to find out about specialist areas which interest her.

Week by week she develops her academic skills, including search and retrieval skills, to further her subject knowledge. In her assignments, the majority of which are essays and examinations, she demonstrates her growing understanding, level by level, of her subject canon.

Maria conceptualises the latest research findings as integral to the gaining of expertise in her field, and when she reaches third level undergraduate study she has an opportunity to undertake her own, substantive research project. In her Masters degree, she can specialise further.

2b Carlo's story

Developing as a researcher: Carlo's experience

- Carlo learns through engaging in research-like activities, as an individual and in research 'teams'
- He develops, practises and evaluates a range of research perspectives and methodologies
- He develops specific research techniques, with associated practical, academic and employability skills



Carlo is afforded opportunities, throughout his undergraduate and postgraduate study, to learn in research-like ways. From his first taught module to his last, he is challenged to undertake investigative, problem-solving and creative tasks. He learns quickly, through structured guidance, how to become independent in his learning, but also how to make the most of his subject's research community, developing peer networks within which he can explore, challenge and enjoy his subject.


Carlo's assessment tasks are largely orientated towards equipping him to undertake research – not only to investigate and analyse evidence, but also to evaluate critically his own skills, approaches and values and to set himself goals for further development. He is able, through guidance from both academic and professional staff, to make connections between these academic research skills and the skills he needs for the workplace. Carlo takes every opportunity to attend College-wide and University-wide events such as the College Postgraduate Researcher Conference and the University's 'Shaping the Future' seminar series. He participates in a 'students as change agents' project relating to his own subject, and in the University's Big Dilemma initiative.

2c Identifying the full spectrum of high quality 'research-led education' practices

The challenge to our practice is to ensure that we provide for the best of both of these sets of experiences in everything we do – at University, College, subject, programme and module levels (**Fig.2**). At present, Maria's experience of research – that is, primarily in terms of curriculum content – is the more common in research intensive universities. Students should be entitled to experience both ways of engaging with research: not only as curriculum content and core academic search and retrieval skills, although these are very important, but also as the acquisition of a clearly identified set of research skills and perspectives. The research-rich opportunities at all of these levels need to be woven into a coherent pattern of experiences for all of our students – experiences which are explicitly communicated to them *as* a coherent pattern of

activities which have deliberately been designed to orientate them to the principles, skills and excitement of research.

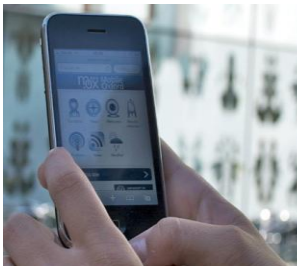
Fig. 2 Research-rich moments: examples by level



University Level	College and subject level	Programme and module level	Student assessments
<ul style="list-style-type: none"> ~ Prestigious researchers as speakers ~ Interdisciplinary initiatives such as Big Dilemma ~ 'In-common' activities such as 'Meet Your Professor' induction assignment ~ Research-related work experience opportunities 	<ul style="list-style-type: none"> ~ College staff-student research conferences ~ College/subject peer reviewed journals ~ Subject-wide events such as guest speakers ~ Events/classes where PGR/PGT students work with and inspire UGs 	<ul style="list-style-type: none"> ~ Inspirational engagement with staff research ~ Learning activities which echo research ~ Stopping off points for students: deliberately mapped research-rich moments whereby students reflect explicitly on their growing skills in and perspectives on research 	<ul style="list-style-type: none"> ~ Research-skills portfolios involving critical reflection ~ Projects and dissertations ~ Team-based problem solving tasks ~ Collaborative group presentations ~ Practice-based/performance-based assignments

Excelling in research-led education requires careful but imaginative curriculum design, in which we capitalise upon the expertise not only of research-active and specialist teaching staff, but also that of academic developers skilled in the design of multi-textured learning activities, a design which focuses on the whole topography of the student journey. Curriculum design should exploit the fact that our students, at any one time, are at different points along that journey. More advanced peer groups within a subject can contribute to the development of students in their early years, for example through contributing to online discussions and peer study groups. Programme design itself should deliver a pattern of coherent, research-rich moments for all students. It should also stretch all students, including the most able, so that they learn, create, and contribute fully to the subject community.

2d Direct links with graduate attributes, skills and employability



When students learn as junior partners in their research communities, they not only develop as subject specialists, but also acquire a spectrum of high level graduate and employability skills, from problem-solving, teamwork and project management to leadership, the highest level communication skills and digital literacy skills.

These research/employability skills have been characterised helpfully in the **Adelaide Research Skills Development Framework**, which provides a useful starting point for further conceptual development in this field. This framework draws on the ANZIL Standards¹ which describe the skills and competencies which together make for effective and appropriate use of information. It describes the 'skills journey' of students as they move from researching the 'commonly known through the commonly unknown to the totally unknown' (Willison and O'Regan, 2007) - involving increasing autonomy.

A second useful model is the **DL framework** conceptualised by Sharpe and Beetham (2010). This also focuses on the digital literacy (DL) skills students need to develop through time but emphasises the idea of creativity and the focus on 'being a researcher' in a discipline. The DL framework emphasises that learning will be context, task and discipline specific. The importance of digital literacies to student learning is one of the challenges which the University of Exeter needs to address, and one which an increase in opportunities for research-like learning will help to address.

Students engaging in initiatives such as the Exeter Award, volunteering and other extra-curricular activities strengthen and extend the skills for life and employment they are already developing through the problem-based, research-related learning and assessment activities embedded in their programmes of study.

¹ ANZIL standards used by NZ and Australian Universities <http://oil.otago.ac.nz/oil/index/ANZIL-Standards.html> are:

1. recognises the need for information and determines the nature and extent of the information needed.
2. finds needed information effectively and efficiently
3. critically evaluates information and the information seeking process
4. manages information collected or generated
5. applies prior and new information to construct new concepts or create new understandings
6. uses information with understanding and acknowledges cultural, ethical, economic, legal and social issues surrounding the use of information

3 What the University is excelling at now

- a. Students as agents for change
- b. Interdisciplinary initiatives such as Big Dilemma
- c. Research communities as evidenced by staff awards
- d. The ASPIRE scheme for staff in research-led education
- e. Case studies embedded in University practices at College and Service level

Where are Exeter's particular strengths in relation to research-led education as we approach the 2012 watershed? Four areas of excellence can quickly be identified. Two of these are ways in which students are currently participating in University life as researchers: the 'students as change agents' initiative and the provision of University-level interdisciplinary events. The third and fourth highlight two areas whereby we can celebrate and promote University's staff strengths in the field of research-led education, including the examples of research-rich teaching evidenced by the staff awards. Finally, we are starting to identify case studies of excellence embedded within Colleges and across professional and academic services.

a. Students as agents for change



This innovative project invites students to engage in active research within their College, by looking into ways of improving the learning and teaching experience. Applicants choose their own topic of research which addresses an area of learning and/or teaching that is of concern within their College.

This is a collaborative project involving both the University's Education Enhancement department and the Students' Guild, with student representatives from Staff-Student Liaison Committees (SSLCs) taking responsibility for promoting evidence-based change. SSLCs and programme managers are expected to take responsibility for embedding student recommendations for change into strategic planning and action. Hence the project is not only about 'students as researchers', but also about enabling students to engage formally with the processes of real and positive change through research.

b. The Big Dilemmas Project



The Big Dilemmas project is an exciting new interdisciplinary initiative that works collaboratively towards solving complex sustainability problems, such as "How can we meet our energy and resource needs without jeopardising the natural environment and future needs?" By investigating and tackling big dilemmas in relation to energy demand, food and water security, health, biodiversity, and poverty and population, students come to a better understanding of sustainable futures and potential ways forward. The project is associated with the 'Climate change and sustainable futures' research theme.

c. Research communities and 'research in teaching' practices evidenced by Guild staff awards



Students, voting through the Guild, have enthusiastically highlighted the University's best research communities and individual staff who are exceptionally inspirational in the ways in which they use research in their teaching. Classic and Ancient History, Film and Geography, for example, were shortlisted as 'best subject research community' in 2011.

As an institution we have some very helpful evidence here of where excellent practices can be found. We can draw upon these subject areas and individuals to create case studies which promote excellence more widely.

d. ASPIRE: Accrediting Staff Professionalism in Research-Led Education

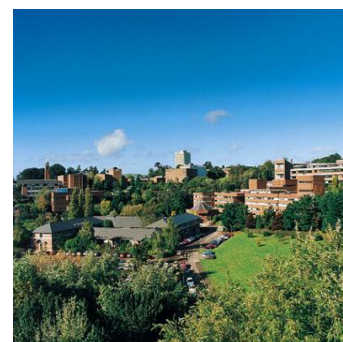
ASPIRE
Accrediting
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The University is one of the first in the country to gaining accreditation with the Higher Education Academy to award Fellowships of the HEA to staff who teach and support learning explicitly within a research-led context. This affords us the opportunity not only to engage staff explicitly, through formal and informal staff development activities, with the whole research-led education agenda and help them develop excellent practices which can be evidenced for their award, but also to make a bold statement to external stakeholders that the University is fully committed to its research-led vision and is following it through in relation to staff accreditation and career progression.

e. Case studies embedded in University practices

Within Colleges there is already a wide spectrum of excellent practices, within and beyond their modules and programmes. These are currently being identified, through leadership of the College Associate Deans for Education, in order to highlight and make explicit the research-led nature of each College's education provision.

Initiatives led by professional and academic services which link research and education can be found across the University. For example, the promotion of research skills initiatives by Library and Research Support and the Effective Researcher Development programme within Employability and Graduate Development contribute to the richness of our students' research-led education. Discussions in the services are currently underway to help identify, develop and promote the ways in which the research-teaching nexus is supported.



Proposals for enhancement for 2012

- a. Bringing together research and teaching staff
- b. Mapping and communicating research-rich moments through the curriculum in all subject areas
- c. Introducing University-wide, research-rich experiences:
 - i. 'Meet Your Professor'
 - ii. Grand Challenges/capstone courses

This paper proposes some specific actions which the University can take in order to enhance and promote our special form of research-led education.

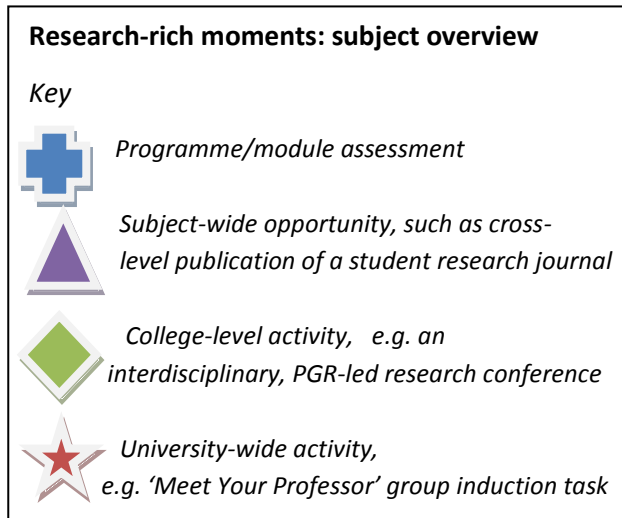
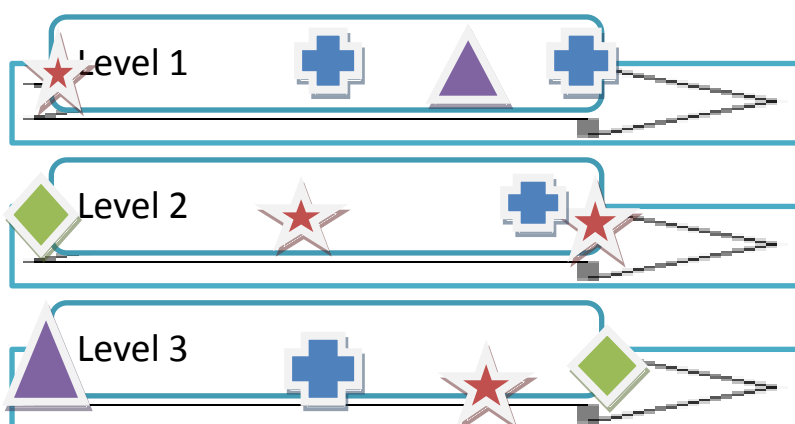
a. Bringing together research and teaching staff

A **Research-Led Education Forum** for bringing together representative senior teaching staff *and* researchers, along with senior professional staff leading on research-led education, would enable us to capitalise upon our strengths in this area. The division of research and teaching in University structures is pragmatic and operationally effective, but a cross-University forum of College/subject representatives from both sides of our academic practice would enable us to raise dramatically the profile of the research teaching relationship and its benefits to students in the post-2012 era. The 'programme refresh and renew' initiative could be moved forward within the larger context of identifying the research-rich moments which occur at all levels of the student experience, and this could in turn feed into a high profile marketing strategy.

b. Mapping and communicating research-rich moments through the student journey

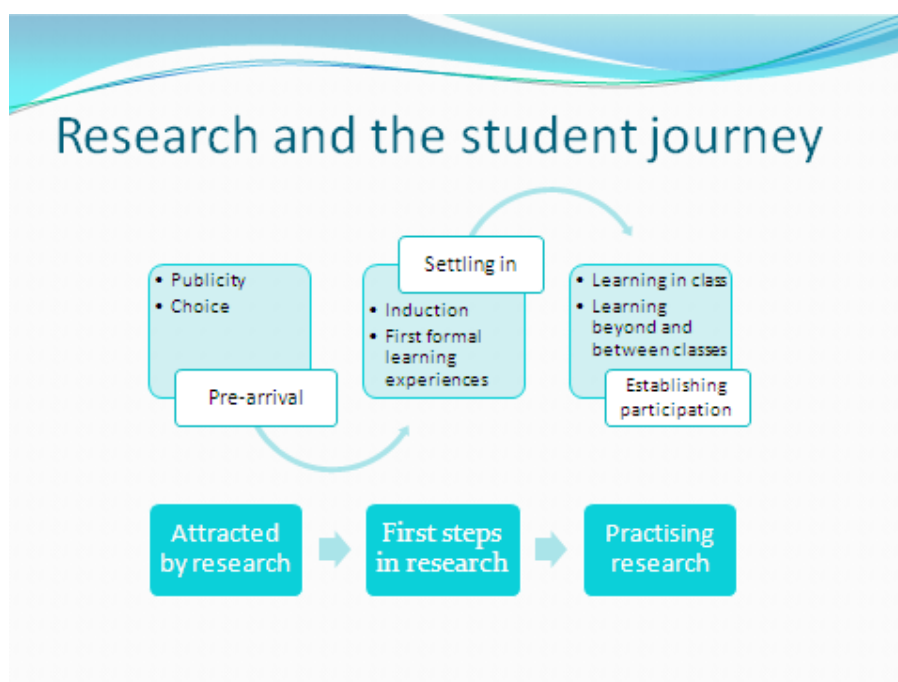
We need to identify patterns of research-led activity through each of our programmes. For students and other stakeholders, this could best be done through a visual mapping exercise which highlights key moments along the journey where 'research-rich moments' occur (**Fig.3**).

Fig.3 Examples of UG mapping



One recommendation would be for the University (Education Enhancement could lead on this) to provide a format and 'house style' for this mapping exercise, so that all students have access to comparable information about research-like learning opportunities across the subject range. The exercise of mapping research-rich moments along the student journey would entail not only identifying key moments in the experience of students within and beyond their programmes, but also recognising the importance of research-led education to marketing and publicity and to review and evaluation (Fig.4).

Fig.4 Research and the student journey



c. Introducing University-wide, research-rich experiences:

- i. 'Meet Your Professor'
- ii. Grand Challenges/capstone courses

The University can contribute to subject areas in the enhancement of their research-led education by providing templates for cross-disciplinary activities in which students engage explicitly with the principles and practices of research. These templates would be developed in consultation with representatives of all stakeholder groups – research and teaching staff, students and relevant professional staff, for example from the Student Experience, Library, Careers and Employability. One example which can be piloted in 2011/2012 is an induction activity for all students: 'Meet Your Professor'.

i. Meet Your Professor

This induction activity is currently being developed as a template, to be used and adapted by subject areas. It entails putting students into small peer groups (typically 6-8) on arrival in their first undergraduate year, and giving them a group task which will be completed by Week 4. Each student group will be given the name of one Professor (or other senior researcher) in their subject area, and asked to undertake the following activities in relation to the work of that Professor.

Meet Your Professor: Group Task *first draft*

1. **First meeting:** Introduce yourselves to each other. Make sure you learn one another's names and take each other's contact details.
2. Together, read the full **Meet Your Professor** assignment brief carefully. Note that *together* you will need to produce a single communications artefact, such as a PowerPoint presentation, a leaflet or a detailed poster, which will introduce the Professor and her or his academic work to a non-specialist audience. Your challenge is to work effectively together as a group to complete this assignment by the due date.
3. During your first meeting, plan a sequence of meetings together, to ensure that you have sufficient time to complete the task.
4. **Week One:** undertake as much research as you can, online and through the University library, into the academic work of your Professor. What is her/his area of specialist interest? Read as much as you can of what the Professor has written: journal articles, books and online publications. Investigate, too, what others have written about the work of your Professor. Make detailed notes on your finding.
5. **Second meeting.** Discuss your findings with your fellow group members. Begin to agree on an outline or narrative for your communications artefact, and consider which ideas and material you should include. Then discuss and agree upon questions you will put to the Professor when you meet her/him in week two. Your objective is to find out what it's really like to be a researcher in your subject. What does it involve, on a day-to-day basis? What are the highs and lows of research? What is the Professor trying to achieve, and why? How will s/he know when s/he is successful? Decide who will ask which questions, to make sure that everyone is involved, and agree upon a strategy for noting or recording in some way your Professor's answers.
6. **Week Two:** You will have been given a time, date and room for meeting your Professor. Make sure that you are fully prepared to ask her/him your series of demanding questions, and to take notes so that this information can be discussed, selected and used later in your group communications artefact.
7. **Weeks Three and Four:** You will need to work together and individually on your communications artefact. In the first follow-up meeting of your peer group, agree on your strategy for completing a draft of the assignment. Arrange a final meeting to review it before submission, and ensure that it is submitted on time, clearly labelled with the names of your group.

Embedding this 'in-common' activity into the first year student experience will not only encourage students to get to know and work with one another from day one, replacing some of the function of the discontinued Team Development Programme, but will also focus their minds on the nature and excitement of research in their subject area from the start of their time at the University. This activity could easily be adapted to suit new postgraduate students.

ii. Grand Challenges/capstone courses

The past academic year has seen the success of the Big Dilemmas project (see 3b). 'Grand Challenges' is an initiative which follows on from this, providing interdisciplinary research opportunities for students above and beyond their programme of study.

What might the 'grand challenges' events offer? *(First overview – detailed template format to follow)*

- A range of issues or dilemmas would be offered for study either within or between Colleges. These would relate to **cross cutting University strategic research themes** e.g. sustainability; climate change.
- The students could (but not necessarily) study in **mixed year/college groups**.
- The event would be designed and led by **senior academics** with support from **PGR students** and perhaps stage 3 and/or 4 undergraduates who would be offered a grant for their work.
- A feature of each challenge would be that **high profile keynote speakers** (either by video conference or in person) would be invited to launch the two week programme – a well known *external* expert might make this attractive to students.
- Teaching and learning approaches would be interactive – possibly using **enquiry based learning methods** – and there would be a focus on developing and assessing **graduate level employability skills including digital literacies**.
- Assessment would be based on **presentations** at a **symposium** held at the end of the module to which the high profile keynote would be invited and in addition we might invite parents and other stakeholders in the student's education – a sort of '**payback to parents as investors**' approach.

5. Next steps

The time is ripe (Summer 2011) for planning a series of next steps in relation to the promotion and development of the University of Exeter's research-led education profile, so that in 2012 we start with a fresh and coherent approach to student entitlement and experience. A detailed action plan needs to be drawn up, ideally by the Research-Led Education Forum referred to in 4a, but recommended actions include:

- a. Development and dissemination of exemplar models for University wide, research-rich moments, led by Education Enhancement in collaboration with College ADEs and other key stakeholders. Early models would include templates for the 'Meet Your Professor' induction activity and for 'Grand Challenges'. Additional case studies would be disseminated based upon areas of outstanding practice, as identified through the Guild Staff Awards. 'Students as change agents' projects would also be promoted as a dimension of research-led education.
- b. College reviews and mapping of research-rich moments in the distinctive College student experience. This mapping will entail reviewing the following dimensions of provision, and agreeing on a minimum 'student entitlement' with respect to research-related opportunities:
 - i. Curriculum design (to include a focus on research-like learning and the development of research skills, with particular emphasis on digital literacies)
 - ii. Subject-level events and initiatives
 - iii. College-level events and initiatives
 - iv. Embedding University-level initiatives such as 'Meet Your Professor'
- c. Submitting a 'Developing Digital Literacies through Research-Led Education at Exeter' bid to JISC (May 2011) and, assuming it is successful, pilot projects and embed their outcomes over 2011/2013.
- d. Embedding research-led characteristics into the evaluation criteria underpinning our quality processes, for example in Annual Programme Monitoring and Periodic Subject Review.
- e. Taking forward the ASPIRE staff accreditation scheme, ensuring that research-led education is central to all training and development opportunities for staff.
- f. Marketing our strengths in providing the highest quality research-led education.

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