

Enquiry-Based Learning For Biology

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Aim: to promote learner autonomy by applying enquiry-based learning (EBL) approaches to modules in the biology course

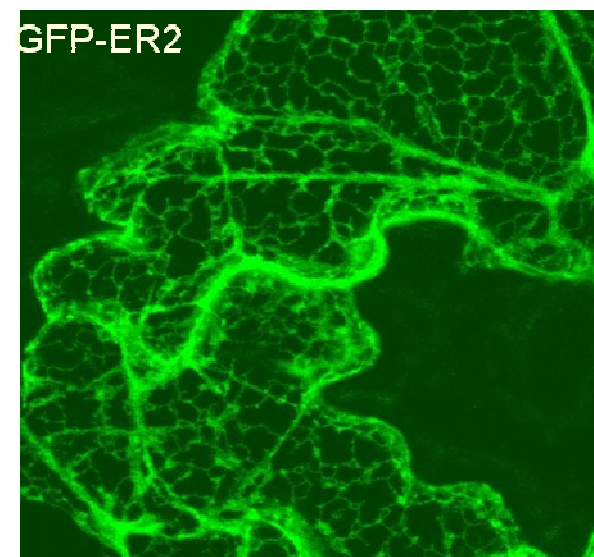
- Biosciences lecturers possess strong research backgrounds that are based on understanding and building new knowledge through enquiry-based approaches, based in the Biomedical Research Centre
- To maximise the transfer of these skills and develop learner autonomy it seems natural to move towards enquiry-based approaches for module delivery
- Expected outcomes are that students will learn biology in a deeper and more coherent manner, promoting quality learning and the acquisition of key transferable skills, leading to greater employability
- This project will build on preliminary development of modules in plant biotechnology and socio-biology
- Specific objectives are:
 1. Linking research and learning
 2. Involvement with external industry experts to enhance employability
 3. Analysis of module materials to identify areas for development
 4. Preparation of an evaluation strategy
 5. Training PhD students to support EBL groups



Outcome: EBL-based modules that are fully developed and evaluated such that EBL approaches can be disseminated more widely through Bioscience and SHU

Progress:

- Sociobiology module implemented in 2008 has built key skills in independent research and oral presentation e.g. YouTube video of grouse lekking simulation
- Plant Biotechnology module implemented from October 2008
- External involvement from biotechnology expert Dr Angela Stafford: promotes authenticity
- Key skills developed in team work: referred to and reflected upon throughout
- Student-delivered lectures:
 - high quality presentations promoted by feed-back and feed-forward comments
- Independent proposal writing: students have worked in groups to develop innovative solutions to current biotechnology challenges
 - evidence that this has promoted engagement, deeper learning, critical skills, and the ability to apply knowledge and understanding



Challenges and attempted solutions:

- Group work: mostly valuable and effective, but tensions develop and problems with marking
 - 30% of assessment is based on group performance, moderated by peer-assessment
 - individual work and exam is largely based on the group project
- Developing the biotechnology proposal: applying knowledge is a large step from understanding
 - groups have put off some of the key decisions and got behind schedule for fleshing out ideas
 - need to introduce smaller steps, possibly by requiring early submission of proposal outlines
- Exam: this accounts for 50% of the module mark, but is not ideally suited to EBL
 - used to cover core knowledge and concepts
 - flexible seen question based on individual projects, which extends the scope of the group work
- Evaluation: difficult to perform on a single small group of students
 - already used a focus group which generated positive comments and specific issues
 - aim to benchmark against other Bioscience students who have done traditional modules and compare performance in independent lab projects in semester 2

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