

University Challenge

I have been invited to reflect in this editorial on my career which spans enormous changes in the higher education system in the UK and to offer advice to staff who, (since you are reading this) are taking the teaching role seriously.

Last year I was promoted to Professor of Teaching and Learning but I have been a researcher into the behaviour, anatomy and physiology of slugs; a teacher of more aspects of biology than I can now remember; a developer of computer simulations for teaching; an educational researcher; and an educational and staff developer. Alongside that I have been on various departmental, faculty and university committees as well as contributed my fair share to activities outside the university. My guess is that this is not unusual during a university career. Over the years we take on new roles, develop new interests and form new alliances. We adapt to being members of a variety of different communities of practice, often a subject based one and a pedagogic one. A career progresses if we make the right choices.

In most walks of life a promotion is into a new role. Universities are strange institutions, however, since promotions are based on what we have already achieved rather than what we are expected then to do. On the one hand this means it is more difficult for the Peter Principle to apply ("In a Hierarchy Every Employee Tends to Rise to Their Level of Incompetence"); on the other it can result in a professorial pool reflecting on past glories and many of whose members are achieving no more than other unpromoted staff.

To advance one's career it will never be enough to be excellent; we have to collect evidence that we are excellent. Although explicit promotion criteria can be provided for various career paths they are often based on those for research and only the emphasis changes. Thus excellent practice is not a substitute for scholarship and pedagogic research. Practice has to be demonstrably excellent through publication, peer review, student feedback, etc. Publications are important

because your application will be considered alongside those of others with extensive research publications. There are now a growing number of outlets for accounts of practice in biology teaching. In addition the dissemination strategy of most projects will involve workshops, presentations and booklets, all of which provide evidence of activity and the resulting feedback testifies to excellence. This information must be systematically collected. Some scientific societies have educational divisions and these provide communities of practice within which we can work and communicate. More importantly the UK Centre for Bioscience provides a ready-made community of like minded individuals with whom to collaborate, a peer reviewed journal in which to publish accounts of practice and a source of funds to support initiatives. In addition the Centre supports projects, not only financially but also by being an important dissemination route and a source of advice.

What advice can I give? Stick to it. The longer you persist the more people will learn about what you are doing. Collect information as it arises. There are no boxes to tick but the excellence of your practice will not speak for itself. You cannot assert your own excellence; it can only be asserted by someone else - your colleagues and your students. But you have to help them do it by collecting what they say. Join a community which is larger than your university. Contributions to the wider community and the evidence from their feedback are critical in collecting evidence of the excellence which may not be immediately recognised within your own institution.

So good luck. Teaching can be fun when the students are on your side. It can also be the basis for a satisfying university career, full of opportunities both to engage with the wider world and for recognition.

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4 | How Many Digits Does a Cetacean Have?

Developing a Practical Zoology Open Educational Resource for the Biosciences Based Around Museum specimens

Practical zoology skills have seen a steady decline in most universities over the past 20 years or more, as noted eloquently by Ken Bowler, Emeritus Professor of Zoology at Durham University:

"Today's universities produce graduates who cannot describe the defining differences between snakes and earthworms" (Times Higher Education, March 2007).

The naming and recognition of different organisms by their phenotypic morphology is a vital skill required by the majority of biological science students, especially organismal biology students.

VERB (Virtual Educational Resource for the Biosciences)

VERB was created in 2009 to supplement museum-based practical zoology sessions undertaken by first year students in the Faculty of Life Sciences at UCL. Originally developed in Moodle, the key objective of VERB is to provide a structured resource with layered information within a blended learning context, allowing students to gradually build up their knowledge of animal biology, enabling them to cope better with so-called 'troublesome knowledge' (e.g. aspects of the topic which are particularly challenging, such as monophyly versus paraphyly in cladistics) and 'threshold concepts' (e.g. binomial nomenclature in classification). VERB aims to extend the time available to students to explore this material outside of formal teaching; important since a class of 100 limits the time available to each student to fully engage with the specimens. The virtual nature also means VERB can be readily accessed for repeat visits for revision purposes. Object based learning, such as these encounters with material from UCL's Grant Museum of Zoology (www.ucl.ac.uk/museums/zoology/), is vital not just for the acquisition of subject specific knowledge but also for the acquisition of key skills including observation, drawing, communication and experiential learning (Chatterjee, in press; Chatterjee, 2009).

Practical zoology

VERB contains a series of WebBooks outlining the diversity of the animal kingdom from an evolutionary perspective, plus an associated glossary with hyperlinked entries. The WebBook combines textual and visual information in the form of labelled diagrams, images of museum specimens and other figures. The topics of focus are phylogeny and functional anatomy, but subjects as wide as genetics, ecology, physiology, development, and cell biology are discussed where relevant. The second part of the resource is a series of quizzes which ask students a range of questions related to the WebBook content.

Evaluation of VERB

Summative and formative evaluation of VERB was undertaken during its development and implementation in the spring of 2009. Results from the formative survey indicate the resource is valuable and informative and increased students knowledge of biodiversity, phylogeny and anatomy.

When asked: "Please describe what effect the online resource has had on your knowledge and understanding of the topics", the following comments were received:

"I learnt some new stuff, and it encouraged me to look up a couple of things that I had assumed were true but in fact were not"

"This has been really helpful, not only in completing the practical but to have something to refer back to for revision. It is invaluable to have one place to find all the info we need for this part of the module"

How can I access VERB?

There are 2 ways to access VERB:

1. Direct access via UCL Moodle: <http://moodle.ucl.ac.uk/course/search.php?search=zoomoodle> By logging in as a guest you can directly access and view material in VERB within UCL's Moodle site.

2. Download the VERB content package from JorumOpen: <http://open.jorum.ac.uk/xmlui/handle/123456789/1913>

By visiting the VERB JorumOpen webpage you can download and repackage VERB within your own VLE. Guidance notes are available at the VERB JorumOpen webpage.

Where next for VERB?

UCL is one of 10 partners who worked with the UK Centre for Bioscience to develop the Open Educational Resource (OER) "An Interactive Laboratory and Fieldwork Manual for the Biosciences" which comprises a broad range of learning and teaching materials representative of the types of resource available to support practical work in many bioscience disciplines. Thanks to the OER pilot programme VERB has been repackaged making it readily accessible. This enables other institutions to use, modify, and reuse content, on the condition that they, in turn, recycle it back into the community. Sharing in this way could reduce the number of institutions producing the same resource and promote a more collaborative approach that could, ultimately, produce high quality resources for higher education teaching in a time and cost-effective manner. For more information about OER please see www.bioscience.heacademy.ac.uk/resources/oer/

Repackaging VERB as an OER demonstrates the value of augmenting existing teaching practices, such as practical zoology, and considering the needs of learners in a contemporary context. The resource also provides wider educational access to a rare and valuable collection of zoological material, and highlights the value of providing real and virtual access to museum collections embedded within HE teaching and learning.

Please contact us if you would like any further information about VERB.

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5 | Invention Activities in the Biosciences

Like most first year biology instructors, we were searching for a 'method' to encourage students to get beyond viewing biology as a set of facts to be memorised and consider the fundamental principles behind the facts. We were intrigued by the idea that we needed to change their mindset before delivering lectures on a topic. Our interests lead us to devise "invention activities" for our courses in cell biology, which enrolls 1800 students per year at the University of British Columbia.

Invention activities are based on the work of Daniel Swartz, a Professor of Education at Stanford University (Schwartz and Martin, 2004). Schwartz and collaborators developed activities where students were required to construct knowledge using a specific task and before getting instruction in the area. The resulting mental framework helped students understand the material and therefore develop deeper and more useful understanding. Starting from this as a goal, we set out to design similar activities in the field of cell biology.

In our invention activities, students are presented with a problem that is intuitive and not "a biological process", at least superficially. They are then asked to invent some process - often a machine - that solves the problem. In one example, students are asked to "invent" a machine that can make chains composed of specified links (in specified orders) and in another they are asked to devise an automatic method for collecting rubber ducks to the centre of a large pool of water. These activities describe problems that are parallel to the problems cells solve (template directed synthesis and establishing gradients). By presenting these non-biological problems, students construct analogies for a biological process out of their own experience and thereby develop the mental frameworks for later lectures on those processes.

We have used these group activities both in small tutorials (24 students) and large lectures (about 250 students) with roughly equal success. In both, there are lively and active discussions throughout the sessions, as students also actively reflect, synthesise and analyse their ideas. The "invention" groups also try to convince others that their invention is "best". Volunteers present their solutions to the class so the examples shown can be used to point out key features that will be developed later. This builds an atmosphere in the class where "inventive thinking" is important.

To examine the benefits of these activities we used a combination of examination questions and think-out-loud problem solving interviews. Our data clearly indicates that the experience with invention activities developed the students' abilities in approaching problem solving and particularly their ability to propose biologically sensible solutions to problems. When presented with a difficult problem, students with "inventing" experience got to work faster and developed more potential solutions without loss of idea quality. We saw these traits developed in students regardless of their scores on standard exams, so it is not only "the top students" who benefit. Of equal importance, students felt the process helped them make connections and apply the material they learned.



Jared Taylor (left) and George Spiegelman review student solutions to the "High Speed Rail" invention activity in the lecture

Overall invention activities appear to be useful, highly engaging additions to classes. They are remarkably easy to adapt to a large lecture hall setting and they promote the type of analytical thinking that is widely sought after by biology instructors. We view the invention activities as simple methods for "teaching what we want the students to learn", which in our case is active behaviours for approaching problems whose solutions have not been given. We think there may be an additional benefit to these exercises. The use of electronic databases gives students the impression that solving a problem is equivalent to finding an answer. Invention activities are explicitly about teasing apart problems and considering solutions. In the current world, these seem like useful skills. Look for more on invention activities in Cell Biology Education in Autumn 2010 (www.lifescied.org/).

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Bioscience Horizons

Bioscience Horizons, Issues 1 and 2 of Volume 3, are now available, containing 22 refereed papers written on the basis of undergraduate projects from across a wide range of bioscience subjects. Volume 4 is currently in preparation.

Please visit the Journal website at www.biohorizons.oxfordjournals.org for further details.

6 | Something to Celebrate

-an Active and Supportive National Bioscience Learning and Teaching Community

Ten years ago a network of 24 Subject Centres was established in the UK to support learning and teaching in Higher Education. In 2004, the Learning and Teaching Support Network (LTSN), as it was known, became part of the newly formed Higher Education Academy. During the last decade the UK Centre for Bioscience has been privileged to work closely with colleagues in bioscience departments and institutions across the UK.

The Centre started with a team of eight following Ed Wood and Andrew Booth's successful bid to host the Centre at the University of Leeds. Over the past ten years, and having grown to a team of fourteen, the Centre has undertaken a wide range of activities and has built up an extensive network of bioscience learning and teaching contacts across the UK (and beyond).

Professional Development Events

Events are an important part of the Centre's programme of activity and we have held over 90 events in 46 institutions with over 2,500 delegates attending. Within our events we aim to give opportunities to hear about and explore new and effective teaching and learning practices in the biosciences. Perhaps most importantly, events are a chance to meet and discuss teaching and learning with colleagues from across the UK.

"The Bioscience events are always well thought-out and provide plenty of stimulating discussion, which can bring out ideas that you can take away and further develop."

Spotlight on: Ethics Events

In conjunction with our Ethics Special Interest Group (SIG) our first Ethics event was held in 2002, and with an ethics event every year since, we've covered a variety of themes from the ethics of being a scientist to teaching environmental ethics.



Funding and Recognition

The Ed Wood Teaching Award, launched in 2009, gives bioscience teaching staff the opportunity to gain national recognition for their outstanding teaching practices. The first winner of the Teaching Award, Mark Huxham (Edinburgh Napier University) described the process of taking part in the Award as "stimulating, supportive and fun" and all the 2009 finalists highlighted the opportunities the Award provided for personal development and recognition, both within their

department and nationally. We are currently working with the finalists for the 2010 Award and applications for the 2011 Award will open shortly – perhaps you could be the 2011 winner?



Over the past 10 years we have funded over 70 teaching and learning-focussed projects on a wide variety of themes. Project activities and outcomes are wide-ranging and might involve production of a teaching resource, introduction of a new teaching method across a department or module or a piece of pedagogic research. Recently we offered funding to our Representatives (key contacts within bioscience departments) and articles highlighting projects led by Kay Yeoman and Anne Tierney can be found on pages 8 and 10 of this Bulletin.

Spotlight on: Student Award

Our Student Award, launched in 2005, has had over 160 entries and gives students the opportunity to share their opinions and experiences of learning in the biosciences. The entries bring together a wealth of ideas and views on topics such as "What makes the best learning experience for you?" and "How would you advise new bioscience students to make the most out of practical work?" The entries give a fascinating insight into student's views on teaching and learning and the value of a bioscience degree.

"I am delighted to have come runner up in the Centre for Bioscience's Student Award, was a lovely surprise to come home to today! I had great fun making the film, so I hope the judges enjoyed watching it too."

Publications

Our publications are an important aspect of our work. Many publications include contributions from the bioscience community and provide an excellent vehicle for sharing practice. Over the past 10 years we have published:

- 30 issues of our newsletter, the Bioscience Bulletin
- 15 volumes of our peer-reviewed journal *Bioscience Education*
- 3 Learning Guides
- 6 Bioethics Briefings
- 9 Short Guides
- 8 Audit Tools

And much more, including "How to" sheets, reports on Practical work and Problem solving...

Our publications and resources for academics are popular and in 2009/2010 we distributed over 500 copies of our New Lecturers' Resource folder. Our publications and resources for students are also growing in number – from employability profiles to guides on getting the most out of a bioscience course.

"I have found the guidance on student research projects most useful. As a new lecturer I was faced very early on with a number of project students but no active research for them to work on. Seeing case studies of the different styles of projects was really useful and sparked ideas for some really interesting and enjoyable projects."



Website

With approximately 8,300 visitors a month our website is a popular way of engaging with the Centre, finding out more about our current activities and viewing and downloading our resources.

"I know where to go if I have a query – the website is excellent and has superb downloadable resources and guides."

Spotlight on: ImageBank

Launched in 2002, ImageBank brings together copyright cleared bioscience images for use in teaching and learning. Developed entirely through image contributions from the bioscience community, including learned societies, industry and individuals and now with over 7,200 images, ImageBank is our most popular online resource.



Representatives

Over the last ten years our network of Bioscience Representatives (Reps), named contacts in bioscience departments and faculties across the UK, has grown and we now have 121 Reps. Each Rep keeps their department up-to-date with news and developments from the Centre and keeps the Centre informed of learning and teaching activities and issues in their department.

Our annual Representatives' Forum (held for the first time in 2003) brings together Reps to network and share practice which they can then take back to inform their own teaching and teaching in their own and other departments.

Looking Forward

What does the future hold for the Centre? With cuts in funding to higher education in general, and with the Centre also facing significant funding cuts, we are likely to encounter many challenges over the coming years. However we are hopeful we will continue to play an important role in supporting higher education teaching and learning across the UK. We believe that as the demands on bioscience teaching staff increase, the Centre will have an increasingly important role in supporting bioscience academics as they strive to deliver the best possible learning experience for their students. Over the next few years it will be important for us to keep up-to-date with, and respond effectively to, the new challenges bioscience academics will face. Changing technology will also impact on both the teaching sector and the Centre and we hope to make more effective use of Web2.0 technologies in bringing together communities of practice, and ensuring effective sharing of good practice across these communities.

We recently asked you to tell us what you thought about the work of the Centre and your response was overwhelmingly positive. You also highlighted a number of areas you, as teaching staff, find challenging. These ranged from increasing class sizes, to limited staff and staff time, to students' numeracy and literacy skills. These are all issues that the Centre hopes to address in the near future. In addition we intend to continue with the many activities outlined above that are well regarded and have a positive impact on our community. In conjunction with the learned societies we are also hoping to provide a more "discipline specific" focus in some of our activities and resources.

It is important for us to stay in touch with the many groups who influence our work, from policy makers and those who employ bioscience graduates, to bioscience students and bioscience teaching staff. Our unique position enables us to help keep policy makers informed about the challenges of teaching in the biosciences and hence influence policy issues in bioscience education. It also enables us to keep the bioscience community informed about changing policy and the implications for teaching in the biosciences. With the recent amalgamation of the Biosciences Federation and the Institute of Biology, to create the new Society of Biology, UK bioscience has, for the first time, a unified voice. We hope to work closely with the Society of Biology in a number of key areas including provision of high quality support for practical work in the biosciences.

Many thanks to all of you who have worked with us over the last 10 years – we look forward to your continued support as we continue to champion the role of teaching in the biosciences.

What would you highlight from the last 10 years of the UK Centre for Bioscience?

Tell us in our Bulletin comments box
www.bioscience.heacademy.ac.uk/resources/bulletin.aspx



8 | Mentoring of Teaching and Scholarship in the Biosciences

Background

The definition of a mentor is 'an experienced and trusted adviser' (Oxford English Dictionary). Eby *et al* (2006) describe mentoring as an interpersonal relationship between the mentor (a more experienced individual) and the mentee (a less experienced individual). In this description of mentoring, the mentor does not have to be more senior than the mentee, simply more experienced in an area relevant to the mentee's needs. It is important to see mentoring as an experience which can benefit both mentor and mentee in terms of learning and development. It is a reciprocal relationship of understanding and empathy, enabling mentees to maximise their potential (Zellers *et al*, 2008) whilst mentors acquire new knowledge and skills through their guidance and support of mentees (Klasen, 2002).

As lecturers we are keenly aware of the importance of mentorship in the provision of academic/pastoral support and advice for students. However, this is not the type of mentoring which is suitable between members of faculty; the most relevant mechanism for this is workplace mentoring. Formal workplace mentoring has existed within the health, teaching and business sectors for some considerable time and there is a wealth of scholarly literature which looks at the effectiveness of these schemes (see, for example, Eby *et al*, 2006, 2008, Sambunjak *et al*, 2006, Ali and Panther, 2008). Whilst some bioscience departments have their own formal in house mentoring schemes, often with different mentors for teaching and research related matters, practices vary considerably between institutions. Furthermore, whilst there are national schemes to provide support for individuals to develop their research activity and careers, there are no mentorship programmes to assist individuals to develop teaching and scholarship focused careers in the biosciences.

Is mentorship required?

Before we tackle the issue of the type of mentorship scheme and the mechanism by which it can occur, we must first address the question 'is such a scheme needed for academic staff whose primary focus is teaching and scholarship?'

Many academics believe teaching is under-rewarded and unrecognised by universities and colleges in comparison with research. In a recent survey conducted as part of the Higher Education Academy's (HEA) report into the status of teaching in Higher Education, whilst 92% of respondents thought that teaching and scholarship should be an important criterion in promotion only 43% believed that this occurred in practice; that promotion was gained primarily through excellence in research (HEA and GENIE CETL, 2009).

The true status of teaching and scholarship compared to research can be judged by comparisons of promotion criteria within individual institutions (Parker, 2008). In the above report, whilst all universities that made their promotion

criteria available to the authors featured research activity and excellence in their promotions policies at all levels, in only 26% of Russell Group universities, 24% of 1994 Group of universities and 49% of new universities was excellence in teaching and scholarship a significant and explicit requirement for promotion from lecturer to senior lecturer (HEA and GENIE CETL, 2009). The situation was far worse higher up the career ladder. For promotion to professor, excellence in teaching and scholarship was a significant requirement in only 8% of the Russell Group and 9% of 1994 Group universities. This lack of emphasis on the reward and recognition of Teaching and Scholarship, particularly at higher levels is borne out by previous studies (Parker, 2008).

In order to successfully develop a teaching and scholarship focused career, we believe it is essential individuals are provided with mentoring, not only at the outset but also throughout their careers. Mentors would provide guidance, act as a role model and encourage regular reflection on teaching practice and career development (Ensher *et al*, 2003; Darwin and Palmer, 2009; Morton-Cooper and Palmer, 2000). A national mentoring scheme in the biosciences could act as a supplement to "in-house" schemes where they exist or as the main avenue for mentorship for those individuals based in institutions which do not have such a scheme. Even in cases where good in-house schemes exist, it is likely engagement with a national scheme will lead to spin-off benefits such as increasing awareness of new teaching initiatives and a wider understanding of the teaching and learning "landscape" outside of a person's home institution.

Types of mentorship scheme

- Mentorship could occur in a variety of ways, for instance via:
- traditional mentor/mentee pairing;
 - more flexible, but distant approaches, using e-mail supplemented by phone or Skype conversations or perhaps via a wiki;
 - workshops designed to explore issues in a group setting;
 - self-mentoring documents aimed at helping people assess their own performance, with an accompanying website to guide them through the process; or
 - mentoring circles where groups of people meet to mentor each other with a facilitator, who keeps the conversations focused (Darwin and Palmer, 2009).

Is there demand for such a mentorship scheme?

Following informal discussions at the 2009 UK Centre for Bioscience Representative's Forum, an online survey was undertaken to determine whether there was a demand for a Teaching and Scholarship mentoring scheme in the biosciences, what it should cover and what format(s) it could take. The results of this survey clearly show there is demand; 95% of respondents would take or probably take advantage of such a scheme. Currently, only 44% thought they received sufficient support from their Head of School or line manager

in the development of a Teaching and Scholarship focused career, with only 33% receiving support or mentoring in this area from colleagues within their institution. In particular, they would like to receive advice and guidance in the writing of educational grants, how to enhance teaching and scholarship aspects of their CVs and advice on the implementation of new teaching methods. There was no clear preferred format for a mentoring scheme.

Meeting the demand

A workshop was held at the University of Leeds in January 2010 as a first step in meeting this demand for mentorship in teaching and scholarship within the biosciences (www.bioscience.heacademy.ac.uk/events/leeds070110.aspx). The main outcomes of this workshop were guidance documents on "how to enhance teaching and scholarship aspects of CVs" (www.bioscience.heacademy.ac.uk/ftp/events/leeds070110/cv.pdf), the "do's and don'ts when applying for a teaching fellowship" (www.bioscience.heacademy.ac.uk/ftp/events/leeds070110/award.pdf) and a request to establish a teaching and scholarship e-mentoring scheme. Subsequently, we have established "Bioscience Mentors", a Google Group whose aims are to provide support and advice for colleagues in career development, educational and teaching and scholarship research, through the provision of guidance documents, regular workshops and an e-mentoring scheme. The latter is a database of individuals who are willing to act as mentors and the area(s) in which they are willing to provide advice and guidance. We believe that everybody, regardless of what stage they are at in their career has something to offer and that individuals can act as both a mentor and mentee, receiving advice and support in one area while undertaking a mentoring role in a different area.

If you are interested in joining the group please contact Dave Lewis, d.i.lewis@leeds.ac.uk or Kay Yeoman, k.yeoman@uea.ac.uk.



Delegates at the workshop

Concluding comments and next steps

This initial work demonstrates a need for a national mentoring scheme to assist colleagues in developing teaching and scholarship focused careers in the biosciences. The measures described here begin to address this need however we recognise the need to work with the UK Centre for Bioscience and other interested parties to develop these further.

Acknowledgements

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Thank you!

Thank you to all of you who took part in our impact and evaluation survey. Your comments and thoughts on how the Centre, and particularly our publications and resources, are impacting on learning and teaching are very welcome. We were also interested to see the range of learning and teaching issues you raised as likely to concern you over the next year or so in relation to learning and teaching and we will actively be using the results of the survey to inform our work.



10 | Engaging Postgrads and Postdocs

It all started at the Centre's Representatives' (Reps) Forum in Newcastle, in 2008. As always, there was a buzz at the meeting, but this time there was something extra – the Centre was offering learning and teaching development grants to the Reps. There were two themes for consideration:

i) responding to individual disciplines – how might subject-specific issues be better addressed across the wide range (at least 26) of disciplines supported by the Centre?

ii) increasing individual and departmental engagement with the Centre – how can we encourage academics and organisations, who have not interacted significantly with the Centre, to work more closely with us?

I'm always up for a challenge, and was aware that postgraduates and postdoctoral fellows, despite having increasing roles in undergraduate teaching at most institutions, did not engage with the Centre. So there was a gap in the market, and this was a chance to fill it. My idea, which was funded, was to host regional day events that 30-35 individuals could attend, give them a chance to discuss learning and teaching issues and practices relevant to them as demonstrators and teaching assistants, network, and engage with teaching resources that the Centre provides. I asked two of my colleagues, Joy Perkins, from the University of Aberdeen, and Morven Shearer from the University of St Andrews to partner me in the project. There was also support from the Centre, Kevan Gartland, Dean of Life Sciences at Glasgow Caledonian University and Chair of the Centre's Advisory Group agreed to give an introduction to the events, and Katherine Clark (one of the Centre's Academic Advisors) agreed to provide an introduction to the support and resources available from the Centre.

Before embarking on the events, it was important to establish what potential delegates knew about the Centre and the Higher Education Academy and what they felt would be most relevant to support their teaching. As former Graduate Teaching Assistant (GTA) Co-Ordinator for Level One Biology at the University of Glasgow, I was aware that some of our GTAs were interested in teaching and often asked about the opportunities to widen their experience of teaching. Was it like this across the country? An online questionnaire was sent out via the Centres' Reps' Network.

There were 163 responses from 18 institutions across the UK. The respondents were asked if they had heard of either the Higher Education Academy, or the UK Centre for Bioscience.

% respondents	Yes	No
Academy	17	83
Centre	10	90

Perhaps unsurprisingly, not many respondents had heard of the Academy, and even fewer had heard of the Centre. From the 22 people who answered 'yes', most had looked at the website (63%), whilst others had heard about it through a training course, or departmental emails.

Despite the majority of postgraduates and postdoctoral fellows not being aware of the Centre, when asked if they would be interested in attending an event designed specifically for their development in learning and teaching, the response from the 157 who answered this question was overwhelmingly positive, with 76% of respondents saying 'yes'.

In order to tailor the event to the needs of the participants, they were asked what they would be interested in. Not surprisingly, small group teaching and lab practicals were the most popular choice, as these activities are the ones GTAs are most likely to be involved in.

Activity	% respondents
Small group teaching	27
Practicals	26
Assessment and Feedback	19
First Year Experience	16
eLearning	9

It was clear from the questionnaire that despite not being aware of the Centre, there was a curiosity about teaching from both postgraduates and postdoctoral fellows. We had enough evidence to start thinking about the events themselves.

Taking the three most popular activities from the questionnaire, we designed workshop activities on Small Group Teaching (Joy), Lab Practicals (Morven) and Assessment and Feedback (Anne). A research assistant, Angelique Stalmach, was employed part time to gather online resources that could be used for the events. She proved invaluable in quickly gathering material from Academy and Subject Centre websites, and also sourcing materials from outwith the Academy and Subject Centres. Two events have been held so far, one in Glasgow, and one in Manchester, with the help of Carol Wakeford, Centre Rep at the University of Manchester.

Discussion at both events was wide ranging and covered topics such as working with 'problem students' through to designing the assessment for a short course or module. Event reports, bringing together presentations, discussion outcomes and resources from the two events are available from www.bioscience.heacademy.ac.uk/events/reportlist.aspx.

Feedback from the two events was very positive;

- The event was extremely useful and I felt filled a gap in my knowledge of how to approach and further my teaching experience.
- A very informative seminar, boosted my confidence in teaching & also offered many resources.
- Extremely beneficial, informative and fun, lots of practical interaction.

It has been interesting to see the enthusiasm and engagement of two quite different groups of young academics, who recognise the value of experience in teaching as part of their academic identity. We are hoping to run more of these events over the next year, so we can engage more postgrads and postdoctoral fellows in other areas of the UK.

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Engaging Postgrads and Postdocs – a Participant's Perspective

I set out very early on a snowy morning to go to the *Enhancing Teaching in the Biosciences* event at the University of Glasgow. I chose to go as I really enjoy the experience of demonstrating to undergraduate students, and would like to follow a career involving both teaching and research. I thought it sounded very relevant and wanted to see if I could further improve my demonstrating and obtain ideas about teaching practice.

The day was excellent fun! I learnt lots of new information about how teaching is carried out in other universities, and about the UK Centre for Bioscience and how it can help postgraduates, both in terms of resources and support. We found out about ImageBank, a collection of biology-related images of just about everything you can think of related to biology, and were given a folder of "Resources for New Lecturers" which is full of excellent material which I could use if I were to become a lecturer. The "Short guide for Postgraduate Demonstrators and Teachers", Teaching Guides and online resources about demonstrating and lab work have been particularly useful for giving me ideas about demonstrating methods. We also heard about using our demonstrating experience to formally recognise our teaching experience and skills by submitting an application for Professional Recognition, Associate status, of the Higher Education Academy.

As part of the day I took part in a number of team activities, discussing assessment, feedback and "what makes a good teacher". I enjoyed the group exercises, particularly those where we were asked how we would deal with difficult students in a tutorial or small group situation. This really challenged our perceptions, and we discovered there was not necessarily just one 'correct' action to take; rather a variety of different reactions which would have been appropriate. There was plenty of literature about careers within the biosciences on offer, including information about how to write a good CV, ideas from which I have attempted to incorporate into my own CV and thoughts about career planning. I also enjoyed the opportunity to network at the event, and made contacts with similar minded people, both students and also staff involved in learning and teaching within the biosciences. I found out some interesting differences and similarities between demonstrating practices at other institutions, for example the amount of marking demonstrators are expected to do.

When I returned to my university, I found the event had made me more willing to get involved in the more challenging aspects of demonstrating from which I would normally have shied away. For example, I was offered the opportunity to teach some tutorial-type classes. These classes can involve quite a lot of skilled negotiation, quick thinking and tactfulness in order to make sure: all the topics are covered for a suitable length of time; everyone has an opportunity to put forward their point of view; and to ensure no one has too little or too much to say for themselves. At the event, we had discussed how to handle difficult situations in tutorials, so this time, I volunteered for these classes and had a go. It wasn't half as scary as I had imagined, I actually rather



Discussions at the Enhancing Teaching in the Biosciences event

enjoyed it. I think the students did too as they seemed engaged and gave me good feedback.

I found the wealth of resources received from the event was quite amazing, and the certificate received afterwards, an added bonus, which can contribute to my personal development folder! The day was really stimulating and I found out lots of interesting information and had the opportunity to explore different perspectives on teaching which will help me in my future. I am now considering my career options from a different viewpoint, and thinking about supporting learning and teaching within higher education institutions, as well as being on the front line, doing research and teaching students I have subsequently been in contact with the Centre, who have provided me with helpful information about exploring careers within the learning and teaching support area.

I had a really enjoyable day and gained many new contacts and ideas, some of which I have already applied in my current teaching and others which I will use in my future career. I just wish that I had heard about the UK Centre for Bioscience several years ago!

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Equality Act 2010: Briefing for the HE sector

Equality Challenge Unit (ECU) has produced an Equality Act 2010 briefing for the higher education sector. The briefing summarises key issues contained in the Act institutions need to be aware of. It also provides information on the admission and treatment of students, employment, provision of services and positive action.

Download a PDF or accessible Word version of the briefing from www.ecu.ac.uk/publications/equality-act-2010



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Student Award 2010

Congratulations to Katherine Staines (University of Edinburgh) and Ricky Trigg (University of Leicester), the winners of this years' Student Award.

Students responded to the question "How would you advise new bioscience students to make the most out of practical work?" and produced resources or guidance aimed at new bioscience students. We received entries in a variety of formats from essays, posters, leaflets and PowerPoint presentations to an online networking group. Entries were judged by a panel of members of the Centre's Advisory Group and student volunteers, and this year it was decided to award first prize in two categories; undergraduate and postgraduate. Katherine and Ricky's entries, along with the runner-up and shortlisted entries, are available to download from our website at www.bioscience.heacademy.ac.uk/funding/essay/award10.aspx



Ricky Trigg's winning poster entry

Recent Events

Final Year Projects: Maximising the Learning gave delegates an opportunity to hear about a range of final year projects and discuss some of the issues surrounding project provision. "Evidence of enormous variety of approaches to running and managing projects."

Developing Lab Skills for the 21st Century highlighted the work of the Centre for Excellence in Active and Interactive Learning (CEAIL) CETL, the Experiential Learning (EL) CETL and the UK Centre for Bioscience in developing students' practical skills. "A refreshing experience which facilitated interesting ideas and was inspiring for future teaching."

Reports from Centre events, including presentations and resources from the day are available from www.bioscience.heacademy.ac.uk/events/reports.aspx

Forthcoming Events

Provisional dates for your diaries:

- Mathematical Challenges for Biologists: 16th November 2010
- Assessment and Feedback: 14th December 2010
- Graduate Attributes: 9th February 2011
- Practical Work: 6th April 2011

Please look out for further details at: www.bioscience.heacademy.ac.uk/events/bioevents.aspx from August 2010.

Centre Resources

Understanding the UK Mathematics Curriculum Pre-Higher Education – a guide for Academic Members of Staff

Comissioned by the STEM Subject Centres and aimed at higher education teaching staff, this guide outlines what students with given prior qualifications in mathematics are likely to know and be able to do. www.bioscience.heacademy.ac.uk/ftp/resources/pre-university-maths-guide.pdf



Short Guide: Differentiated Learning – Stretching Able Students

Following on from our differentiated learning events and report this short guide brings together ideas for supporting more able students. Ideas and activities for stretching able students on an individual basis and in tutorial groups as well as activities that could be implemented across a department are discussed. www.bioscience.heacademy.ac.uk/resources/shortguides.aspx



Student Short Guide: Making the Most of Practical Work

Bringing together advice from entries to this years' Student Award, this short guide gives bioscience students hints and tips on how to get the most out of their practical sessions and field courses. Something to direct your new students towards in September? www.bioscience.heacademy.ac.uk/resources/studentguides.aspx



Comments Box

The Centre would love to hear your opinions and views on issues in the Bulletin

- What are your 'best bits' from 10 years of the Centre? See pages 6 and 7.
- Have the postgraduate demonstrators and teachers in your department heard about the Centre and how it can support their teaching? See pages 10 and 11.
- Have you tried invention activities with your students? See page 5.

If you have any comments on any of the articles in this edition of the Bulletin please visit www.bioscience.heacademy.ac.uk/resources/bulletin.aspx to share your views.

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Compiling Editors: Josie Thomas and Katherine Clark
To request copies of the Bulletin in an alternative format please contact the Centre. The Bulletin is printed on recycled paper.