

Physiology Teaching Workshop – September 17th 2009

In attendance:

May Azzawi (Manchester Metropolitan University), Laura Ginesi (Birmingham City University), Charlotte Haigh (University of Leeds), Michelle Keown (University of Manchester), Dave Lewis (University of Leeds), Fang Lou (University of Hertfordshire), Tristan Pocock (University of Manchester), Clare Ray (University of Birmingham), Sean Roe (Queen's University, Belfast), Rebecca Rowland (University of Oxford), Elizabeth Sheader (University of Manchester), Tracey Speake (University of Manchester).

The support of The Physiological Society was acknowledged.

Introduction

The workshop began by each participant describing his/her teaching role and some background. The participants were a mixture of Teaching Fellows, Lecturers and Researchers – all were involved in teaching Physiology. Most of the participants taught Physiology on a range of different degree programmes, from Medicine to Dietetics, and described a variety of approaches to teaching, including *in vivo* techniques and 'integrated problem solving.'

Requirements of a Physiology Teacher

Participants agreed that, in order to teach Physiology at undergraduate level, it was necessary to be qualified at least to PhD level and to keep up-to-date with scientific developments by attending conferences.

DL suggested that the following were useful for providing travel grants:

- The Physiological Society (also lists sources of travel grants)
- The Society for Neuroscience
- Bioscience Subject Centre
- The Royal Society

Some institutions maintain that Year 3 teaching must be carried out by research-active lecturers. It was suggested that those people who are not currently research-active could keep involved with research by collaborating with researchers and could set aside time for educational research (e.g. by giving students specific times when they could visit and blocking out other times).

Resources

We discussed the resources available for Physiology teaching, the problems associated with sharing resources between institutions and the advantages of doing so:

Problems	Advantages
Getting individuals and/or institutions to agree to sharing	Enables collaboration of ideas
Need to consider IP implications	Utilizes different teaching styles
	Good for career development
	Publications – more likely to be published if piloted at more than one institution

	Payment for ideas (Centre for Bioscience Case Studies)
	Better chance of funding if resources shared across institutions

- PHILTER – not everyone was aware of this. This resource is still under development.
- Bioscience Image Bank (<http://www.bioscience.heacademy.ac.uk/imagebank/>) contains a good collection of images – DL suggested a two way link be set up between Physiological Society and the Centre for Bioscience to enable maximal utilization of these images.
- American Physiological Society (<http://www.apsarchive.org/index.cfm>) – has a good resource bank.
- The Biochemical Society (<http://www.biochemistry.org/Education/>) – also has some good resources.

Recent Publications

The Walport report¹ – this report (published in 2005) encourages the use of clinically-trained academics in medical teaching. Some participants were interested in completing a postgraduate medical course but were unsure of how to get funding for this.

Publishing Teaching Innovations

There was some discussion about which journals were most appropriate for publishing work. It was suggested that journals with a high impact factor (e.g. Medical Education – 2.1) were top of the list, followed by other refereed journals. The American Advances in Physiological Education is an appropriate journal for publishing educational studies.

Alternatively, the Physiology News magazine is a good medium for getting information across to other Physiology teachers. Online journals such as Bioscience Education Journal are another possibility, but are not ‘refable’ (i.e. cannot be included in the RAE). It was pointed out that no Physiology journals will accept teaching publications! TS suggested that Physiological Society could have a link from its website to educational developments published by members. An alternative would be to inform SIG members of recent teaching publications in a SIG newsletter. Another way of getting published would be to adapt resources for different settings (e.g. Neuroscience, Biochemistry).

Conferences/ Workshops

The following were mentioned as relevant conferences/ workshops for Physiology teachers:

- The biannual Science Learning and Teaching Conference (SLTC) is well-attended and good for networking with other Physiology teachers.
- A two-day international conference at the University of Hertfordshire is popular with academics from new universities.
- Manchester Metropolitan University holds regular teaching and learning workshops.
- Regional forums of the Centre for Bioscience.
- Heads of Department workshops – information from these tends not to be successfully disseminated.

It was suggested that anyone wanting to advertise a conference/ workshop relevant to Physiology teachers should contact Chrissy Stokes.

Ideas for workshops

Currently, Physiological Society conference sessions are formatted in a way which is suited to research presentations but are less conducive to teaching presentations. Furthermore, teaching workshops tend to be slotted in at the start or end of conferences when few delegates are around.

The idea of a 'swapshop' format was popular – this would involve several presenters scheduled for 10 minute slots (5 minutes presentation followed by 5 minutes discussion). The advantages of this format include: more interactive sessions; instant feedback on ideas; and several delegates get a chance to pitch in. It was suggested that this format could be piloted at the Manchester 2010 meeting but would need to get permission from the SIG (the Centre for Bioscience model could be cited).

Getting students to think laterally

The recent APBI report² suggested that Bioscience students were lacking in:

- Scientific knowledge
- Maths knowledge
- Being able to apply these
- Systems physiology/ pharmacology knowledge

We discussed ideas for engaging students with physiology:

- The University of Birmingham has devised a course of integrated problems in which case studies are used to promote open-ended PBL (i.e. there are no set learning outcomes – students are encouraged to devise their own)
- Final year projects in which students design activities for other programmes
- Drop-in physiology workshops for nursing students (Birmingham City)
- Group Wikis - students are given titles of topics to research and post their findings for other students in the group to edit (with tracking mechanisms) – other groups get to see the work at the end of the exercise
- ePortfolios/ blogs – give students the chance to write about what they have learnt, how they learnt about it and what worked for them; this information can be shared with other students
- Pebblepad – similar to an ePortfolio, this can be used as a repository for uploading files which can be shared, published, examined or exported, enabling comment or collaboration – 'webfolios' can be linked to other repositories such as Flickr or YouTube
- Active sessions – these are interactive teaching sessions where students get to engage in games such as bingo or happy families, making learning more fun
- Voting pads – can be used by students to ask questions within a lecture or give instantaneous feedback
- Ning – is a site for creating or joining social networks (e.g. Classroom 2.0 – a social network for people interested in Web 2.0 and collaborative technologies in education)
- Twitter
- Flip cameras – these are compact, cheap video cameras which produce high quality images – they can be used by students for blogs, etc – Chris Willmott (Leicester) provides advice about filming, editing and the best cameras to buy.

Final Year projects

As only about 20% of physiology graduates actually stay in science, it is perhaps vital to offer students an alternative to 'wet' lab projects. One problem faced by Physiology teachers is offering academically equivalent projects, which will be accepted by colleagues and external examiners.

A good example of a successful alternative was described by Debbie Bevitt³ at Newcastle – the project is offered to over 20 students (currently Biomedical Sciences) in a multi-user lab. Students are supervised / assisted by postgraduate students and carry out a variety of appropriate assays – they need to consider which equipment to use, the budget, etc and encounter false results along the way. Another way of easing the burden of supervision is to use department-funded Ph.D. students (Bath) to help out with final year projects.

TS discussed the Enterprise projects offered to students in Manchester – these have proved popular to students, external examiners and supervisors. In teams of 5/6, students develop a product/service using pre-selected research knowledge outputs from life sciences. In addition to generating a feasibility study for their idea and presenting their findings in a poster presentation, each team produces a business plan and pitches their idea to a panel of staff in a re-enactment of Dragon's Den.

Other examples include science communication projects (Leeds) – these involve a 6 week design culminating in a 2 hour interactive session with students attending National Science week. These projects are written up in the same way as lab projects with the results being the results of feedback.

FL described the wet and dry projects offered in Sports Science at Hertfordshire which utilise the sports technicians – protocols are designed by students, approved by academics and supervised by technicians.

In Leeds, 60% life science students do literature projects, with the bottom ranked students academically getting the last choice. Other projects on offer include: computer simulations; science in society⁴; and public health interventions (including health promotions) – by offering students a choice, the weakest students are not stuck doing one type. In Exercise sciences, some students go into elderly person's homes and investigate exercise levels – the students then produce a 'strategy' for increasing exercise levels – these projects require University ethics approval and strategies are not implemented without medical approval.

The Bioscience Centre lists several different project types offered by UK institutions, including how to do them, the marking criteria, etc

Bioscience Horizons is a peer reviewed journal published by the Oxford University Press which publishes exceptional final year student project write-ups – it offers a good way to showcase projects and an incentive to students (and their supervisors). Published articles can be based on either wet or dry projects. Some project supervisors are not always willing to grant permission for publication as these are copyrighted (and so could affect publication of the supervisor's research).

Office of Life Sciences

DL introduced this cross-governmental organisation, which provided a blueprint for life sciences in July⁵. This document states that, in future, life sciences courses will need to be accredited by the Society for Biology and, as such, will need to offer core curricula for all degree programmes. The other participants were unaware of the document and wondered what Physiological Society's views were. There was concern about how restrictive accreditation might be.

The HE Forum has been set up to advise the Government – it consists of task and finish groups (including representatives on *in vivo* sciences, clinical pharmacology, etc). It is important for the protection of staff in key areas (e.g. *in vivo* studies).

Some of these points have already been raised in the report by the Association of the British Pharmaceutical Industry (ABPI). The survey conducted by the ABPI highlighted the need to address the deficits in skills supply, including improving the core skills of practical capability, the application of scientific knowledge mathematics across disciplines.²

Career Development

The participants discussed the difficulties associated with career progression in academic staff dedicated to teaching and concluded that it would be useful to set up a mentoring system between institutions to advise on negotiating for promotion. There is evidence to suggest that a 'glass ceiling' exists – only one Senior Teaching Fellow has been appointed at Queen's and nobody could name a TF who has been appointed Chair. Jon Scott pointed out that in conjunction with the HEA, Leicester has recently produced a national report regarding reward and recognition.⁶

Manchester awards discretionary increments for educational developments and also has a clear path for progression.

Leeds – staff need to progress in at least two of three strands (research, scholarship, enterprise/ knowledge transfer) in order to gain promotion – promotion committees tend to be dominated by research-active members.

DL mentioned a survey designed to look at career enhancement + institutional policy; teaching/research focus and promotion.

Questions which need to be addressed:

- How can academics get teaching awards?
- How have individuals attained promotion?

Leeds and Birmingham are no longer appointing Teaching-only staff!!

Follow up

Chrissy Stokes has offered to circulate the minutes of this meeting to members of the Education Special Interest Group. It was suggested that a follow-up meeting could be arranged in mid-January 2010.

References

¹ Walport Report (2005). Medically- and dentally-qualified academic staff:

Recommendations for training the researchers and educators of the future. Available from http://www.nihrtcc.nhs.uk/intetacatrain/index_html/copy_of_Medically_and_Dentally-qualified_Academic_Staff_Report.pdf

² Association of the British Pharmaceutical Industry (2008). Skills needed for biomedical research: creating the pools of talent to win the innovation race. Available from <http://www.abpi.org.uk/publications/pdfs/2008-10STEMSkillsReviewReportFINALamended2.pdf>

³ Bevitt, D. *et al.* (2009). A practical alternative to final year projects in Biomedical Sciences. Available from <http://www.bioscience.heacademy.ac.uk/ftp/events/sltc09/proceedings09.pdf-O27>

⁴ Lewis, D. (2009). "Science and Society" projects as alternative Final Year research projects. Available from <http://www.bioscience.heacademy.ac.uk/>

⁵ Office for Life Sciences (2009). Life Sciences Blueprint. Available from www.dius.gov.uk/~media/publications/O/ols-blueprint

⁶ Higher Education Academy (2009). Reward and recognition of teaching in higher education – an interim report. Available from <http://www.heacademy.ac.uk/ourwork/research/rewardandrecog>