Open Educational Resources for Biosciences Teaching

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Since computers and (slightly later) the Internet first became widely available in education, teachers and lecturers in all subjects and at all levels have been creating and sharing computer-based teaching materials. There can be enormous advantages to sharing teaching resources. It can save an enormous amount of time: if someone else has gone to the trouble of creating a demonstration of enzyme kinetics or an animation of DNA replication, for example, why reinvent the wheel? But this approach also has its disadvantages. Lecturers, who very often have busy research laboratories to run, need to take time to search for suitable materials, evaluate them – not only for overall quality, but also for suitability for a particular class at a particular level – and check what the original authors allow others to do with them. It is all but self-evident that use of others’ material should be acknowledged, but only some authors allow their material to be adapted as well as directly reused: and, in any case, what about a single PowerPoint slide? It can be as time-consuming, although not as complex, to select and evaluate appropriate resources from the enormous selection that is available, or apparently available, online as to write them yourself.

Designating materials as Open Educational Resources (OERs) can provide a way through this maze. This term, coined by analogy with, for example, the open-source software and open-access publishing movements, is used to define educational materials where reuse and (often) adaptation or repurposing is not only tolerated, but also positively encouraged. Open Educational Resources should also be kept up to date (which is particularly important in a subject as fast-moving as biochemistry), should be easy to find, and should be tagged so that potential users can easily discover the exact subtopic and level that they have been designed to teach. Providers of such resources are encouraged to license them into the public domain through, for example, a Creative Commons Licence, to completely clarify the position on intellectual property. Several types of Creative Commons Licence are available, giving different degrees of access to created material; in all licences, the original creator retains copyright and use without attribution is forbidden.

There are already many resource collections that make use of some or all of the principles of OERs, either implicitly or explicitly; well-known examples include MIT’s freely available Open Courseware and Apple’s iTunes U. In the UK, however, many academics and their departments have seemed either unaware of this approach or unwilling to engage with it. Since 2009, the Higher Education Academy (HEA) – the UK’s learned society for lecturers in higher education – and JISC, which supports innovation in IT by the higher education community, have been working together to create, disseminate and increase the effective uptake of open educational resources in the UK. (Older readers may remember JISC as the Joint Information Systems Committee, which was responsible for setting up and maintaining JANet, the Joint Academic Network.) One of the main aims of this project is the production of discipline-specific repositories of well-annotated high-quality teaching and learning resources, and a substantial proportion of its funding has been made available to the HEA’s network of discipline-specific Subject Centres.

Biochemistry and molecular biology fall within the remit of the UK Centre for Biosciences, along with all other non-clinical life science disciplines. The Centre for Biosciences took part in a pilot phase of the OER project in 2009–2010, collating open learning and teaching materials with an emphasis on biology laboratory and fieldwork, areas that were thought to be particularly under-resourced. Members of the bioscience higher educational community were asked to contribute resources within this broad area that could be reworked and made more widely available. All suitable resources were annotated and released into the UK’s existing JorumOpen repository, from where the original authors and the project team hope that they will be readily sourced and used. These are all linked from www.bioscience.heacademy.ac.uk/resources/oer/ and divided by subdiscipline: the Virtual Biochemistry Laboratory may be of particular interest to readers of The Biochemist.

The Bioscience Centre has now launched the second phase of this project. The OeBITAL (Open Educational Resources for Bioscientists Involved in Teaching and Learning) project, which runs formally until August 2011, aims to discover, collate, annotate and release a larger number of open educational resources covering a wider range of disciplines within the biological sciences as a whole. Ten discipline consultants have been recruited from across the biosciences to handle their own subject specialties. I, your Cyberbiochemist editor, am one of these: I am tackling biochemistry and molecular biology with Carol Wakeford from the University of Manchester, and bioinformatics alone. Our brief is to gather, collate and promote educational resources in our disciplines using professional networks and Web 2.0 tools. Providers of open content will be encouraged and helped, but not required, to set up Creative Commons or similar licences to clarify their position regarding copyright and IP.

More information about this project is available at www.bioscience.heacademy.ac.uk/resources/oer/. And if you or your colleagues have, or know of, resources that might usefully be added to this collection, please email me at c.sansom@mail.cryst.bbk.ac.uk.
Best of the Web

Orwell in the coop

Mark Burgess (Executive Editor)

The Orwell Trust, which with the Media Standards Trust and Political Quarterly, administers The Orwell Prize, is publishing George Orwell’s domestic and political diaries as a blog (http://orwelldiaries.wordpress.com), exactly 70 years after they were originally written.

These are unlike the diaries of most literary figures; the entries show Orwell living the life of a smallholder. Here is the entry for 12 June 1938: “There was evidently some rain last night. This morning overcast & rather chilly, then from 4–6 in the afternoon heavy rain. Finished hoeing maincrop potatoes, which are now practically all up. (There are 4 rows Epicure, 10 of Red King & 2 of King Edward. Excluding the Epics, this ought to give about 3 cwt. of potatoes). The hen sitting the duck eggs has twice moved them across the coop, presumably because moles burrowing below trouble her, but she seems to be sitting them all right.” That’s it. No mention of the publication of Coming Up for Air that day. Tags are things such as “broody hen, lobelia, moles, rain, varieties of potatoes, weather.”

This changes with the coming of war. From 2 July to 1 September 1939, he wrote entries that summarized the day’s events (under the headings of Foreign & General, Social, Party Politics, Miscellaneous, and Remarks) and cited his sources (usually the Daily Telegraph). The entries are separated by pages from the newspapers of the day.

Here is part of the entry from 24 August 1939: “Russo-German Pact signed. Terms given in Berlin … suggest close pact & no ‘escape’ clause. This evening’s radio news gives confirmation in Moscow in same terms. Official statement from Moscow that ‘enemies of both countries’ have tried to drive Russia & Germany into enmity. … C[ommunist] P[arty] putting good face on Russo-German pact which is declared to be move for peace. Signature of Anglo-Soviet pact demanded as before. D[aily] Worker does not print terms of pact but reprints portions of an earlier Russo–Polish pact containing an ‘escape’ clause, in order to convey impression that this pact must contain the same.”

The entry for 3 September 1939 reads “Have again been travelling etc. Shall close this diary today, & it will as it stands serve as a diary of events leading up to the war. We have apparently been in a state of war since 11 a.m. this morning.”

Then the diary reverts to his smallholding (“It seems that since 24.8.39 (i.e. 12 days) the hens have laid only 85 eggs, mostly big ones. All the older hens are moulting.”) with the fighting hardly intruding (“Air-raid warnings, of which there are now half a dozen or thereabouts every 24 hours, becoming a great bore.”). However there is a lot of careful analysis of the politics of the war and of the home front as well as some faulty conclusions – he was convinced there would be a revolution at the end of the war (“When you see how the wealthy are still behaving, in what is manifestly developing into a revolutionary war, you think of St. Petersburg in 1916”). There are a few interesting anecdotes about his contemporaries, but this is not the Orwell we know from his letters.

All in all, this is an unusual insight into the mind of one of the great English writers.

Do you want to help enthuse the next generation of bioscientists? Or keen to show the public the positive impact molecular biology has on their lives?

If so, we can help!

The Biochemical Society offers grants of up to £1,000 to support scientific outreach activities that communicate the excitement and relevance of molecular bioscience to young scientists at school or college. Grants can also be used for events that promote the importance and understanding of biology to the public.

Examples of possible activities include:
• workshops for school students or teachers
• exhibitions
• inspiring scientific talks
• activities for a science club

Apply now and your activity could be part of our 2011 Centenary celebrations!

We are especially keen to see applications that promote collaborations between institutions or groups.

Further details – including activity ideas, reports from past events, potential collaboration partners, eligibility criteria and the application form – are available at www.biochemistry.org/ScientificOutreachGrants.

Deadline: 29th April 2011.