

Centres for Excellence in Teaching and Learning: a UK initiative

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Through a 317 million pound initiative, the Higher Education Funding Council for England is establishing 74 Centres for Excellence in Teaching and Learning. Many universities will be hosting one or two of these centres, and a few will be accommodating three or four. In total, 54 HEIs are leading at least one CETL and a further 25 institutions (not all of them universities) are involved as partners in collaborative bids.

Some of the centres will be subject oriented, such as the Physics Innovation Centre for Excellence in Teaching and Learning (piCETL), while others will be directed more towards teaching methods, such as Manchester's CETL for Enquiry Based Learning, or towards generic activities such as Oxford's postgraduate-based Centre for Excellence in Preparing for Academic Practice. Each of the centres is funded for five years, typically with half a million pounds per year for recurrent expenditure and up to two million pounds for capital expenditure. The centres should commence their operations this year, mostly between April and October, and all are expected to have a direct and substantial impact on the learning experiences of a large number of students.

Many of the 74 CETLs may have some impact on the teaching and learning of physics and astronomy, but only four are regarded as strongly oriented towards physical science and only two of those have an overt physics mission. The four 'physical science' CETLs are the Physics Innovation CETL in which I am involved, Nottingham Trent's Centre for Effective Learning in Science (CELS), Bristol University's Chemical Laboratory Sciences CETL (ChemLabS), and the Open University's Centre for Open Learning in Maths, Science, Computing and Technology (COLMSCT).

COLMSCT will be directed by a physicist, Prof Steve Swithenby, a former Dean of Science at the OU, but it will be concerned with a wide range of issues in the open and distance learning of technical subjects, as its title implies. The CELS initiative is likely to have a stronger physics focus. Its declared aim is to create a new image for science - as relevant, accessible and achievable - in schools and universities. Meeting this aim will involve the development of new learning materials based on methods such as context-based learning (CBL), problem-based learning (PBL) and concept learning (CL). CELS will also develop individualised instructional materials to support those entering HE with non-standard backgrounds. It will also develop experiments designed to improve the interest and understanding of science, and conduct outreach work in all the sciences. Through these and other activities, CELS hopes to raise the aspirations of local people in the Nottingham area to enter HE in science disciplines.

The piCETL is the result of a collaborative bid, led by the Open University in partnership with the University of Leicester and the University of Reading. The partnership will build on existing expertise in multimedia teaching, problem-based learning and skills-based laboratory teaching, and will further develop these approaches in a synergistic fashion that will eventually benefit a very large number of physics students. The capital funding will be used to develop offices and e-learning facilities at the OU, to refurbish laboratories at the University of Leicester and to further enhance recently refurbished laboratories at the University of Reading. By making use of modern educational technology, the benefit of these expensive facilities will first be shared between the three institutions and then disseminated to others throughout the UK. Once in operation, the Centre will make positive efforts to engage all those interested in the collaborative development of innovative physics teaching, and will operate a visitor programme.

Specific deliverables that are expected to result from the operation of the piCETL include an e-learning course in introductory astronomy (due for first presentation in May 2006); state of the art laboratory facilities at the Universities of Reading and Leicester, and, in the longer term, developed methodologies for the support of online students of physics and astronomy. The work needed to secure these deliverables will be carried out by established teachers of recognized excellence within the three departments involved in the partnership. In order to ensure that those established teachers are freed from their normal duties, the Centre will provide their departments with the necessary funds to hire

replacement academic staff. The Centre will also fund project support, software development, secretarial services and essential travel. The benefits to students will include an enriched programme of e-learning, a strengthened element of problem-based learning and a substantial improvement in problem solving and employability skills.

Most of the CETLs have as part of their mission, the linking of excellence in teaching and learning with the advancement of pedagogy through scholarship, reflective practice and research. The piCETL, working with the Institute of Physics and the Higher Education Academy's Subject Centre for Physical Science, will certainly want to play a full part in this programme. Thanks to the funding supplied by HEFCE, and the growing interest shown by a number of bodies, the time seems finally to be arriving when Physics Education Research (PER) will become a properly valued professional activity in UK physics departments. Such a development can be expected to be of great benefit to future physics students, wherever they choose to study.

For further information about the CETLs see the HEFCE web-site www.hefce.ac.uk under Learning & Teaching/CETL.