Hosted by the UoN CETLs (Centres for Excellence in Teaching & Learning)

For all staff, postgraduates and student groups interested in developments in teaching and learning.

Wednesday 10 December 2008                  10.30-3.30              Level 1, Hallward Library, University Park

CIL: www.nottingham.ac.uk/integrativelearning
RLO: www.rlo-cetl.ac.uk
SPLINT: www.le.ac.uk/geography/splint
VLL: www.visuallearninglab.ac.uk

For queries regarding this event please email integrative.learning@nottingham.ac.uk
Outlines of CIL funded projects being showcased:

**The Development of Virtual 3D Art Galleries to Promote Student Awareness of the Politics of Space**  
*Project Lead: Mark Rawlinson*

The aim of this project is to design and produce computer software which will allow users (students, staff and even external gallery/museum staff) to curate art exhibitions in virtual 3-dimensional gallery spaces. The software will form an important part of the new MA programme in Art History and Visual Culture.

For the student learning experience it develops a new and unique learning environment, incorporates a work based element (in that the galleries used will be virtual replicas of real galleries), as well as encouraging students to draw connections between a range of conceptual and abstract problems with practical solutions.

**Addressing the Teaching of Sensitive Issues Through Pod- and Vodcasting**  
*Project Leads: Gary Mills & Rolf Wiesemes*

This project integrates formal and informal learning approaches by using (audio) podcasts and (video) vodcasts as a means to support PGCE students, specifically historians, in their thinking, planning and delivery of lessons on sensitive and controversial issues such as the Holocaust, genocides, community cohesion and religious conflicts. By addressing the teaching of sensitive issues it promotes ways of thinking in students which go beyond pure subject knowledge, taking into account personal, emotional, professional, historical, and ethical aspects.

**Integrative Learning in the Medical Curriculum - Clinical Reasoning Assessments on Graduate Entry Medicine**  
*Project Lead: Danny McLaughlin*

The main aim is to develop reliable, well validated assessment items that test students' attainment of clinical reasoning abilities. This will be done via a process of feedback- and reflection-led modification of assessments over the period of the project. This stimulate students to integrate their basic science and clinical knowledge early. It is important because such integration is an essential underlying component to the ‘clinical reasoning’ process that they will have to become competent in (to a certain level) by the end of their medical degree. Thus they will prepare students better for the clinical rotations of their degree and for subsequent work as a medical practitioner.

**The Virtual Portfolio in a Learning Context**  
*Project Lead: Jennifer Dandrea*

The aim is to develop and pilot a web-based resource called a Virtual Portfolio Tool (VPT) to support the portfolio assessment for Students in the School of Nursing. The VPT will provide a consistent and updatable ‘one-stop-shop’ for information on completing portfolios. Although there will be core information on portfolio-related topics available, each VPT will also be customisable so that individual course leaders can modify them to suit students' needs. The VPT can link to other learning resources or link from a home page. Initially the VPTs will be piloted within the School of Nursing. If this is successful, it is hoped to expand their use to other Schools within the University.

**Use of Video & Audio Podcasts to Support the Transition Between Level One and Two in Chemistry**  
*Project Lead: David Brentnall*

This project will allow students to embed key concepts from year one studies as an integral part of year two courses. Students will reflect on their understanding of ideas and the process of deciding how best to communicate them to others by taking part in the production of up to date and accessible teaching resources. It is proposed to produce a series of audio and video podcasts covering some of the core ideas from first year modules. The podcasts will be produced primarily by current year one students with an academic member of staff in an editing role. The resources will be used as the basis for some peer teaching and assessment sessions prior to the examinations.
This project aims to integrate students' learning with outreach work, to give them experience of communicating with different audiences, motivation for producing excellent work by having an intended audience for the work beyond its markers, and to provide opportunities to develop transferable skills which will be useful for future careers. It addresses employability, encourages dynamic, student-led approaches to research, and involves innovative assessment.

Developing a Reusable Learning Object (RLO) to Support Traditional Lectures in Philosophical Logic
Project Lead: Andy Fisher

A common buzz phrase in learning and teaching is 'student centred interactive learning'. This project will investigate how effective this approach is by focusing on reusable learning objects. RLOs are becoming popular within the sciences, but are hardly ever used within the humanities. The focus is not on how to build an RLO but primarily on the pedagogical underpinning and impact of supplementing traditional didactic lectures with this more interactive approach. The hope is to give staff more insight into how students learn and the possible ways of harnessing innovations in e-learning to improve the learning environment for students.

Using Public Engagement Projects to Enhance and Develop Creative Learning and Teaching in Science and Engineering
Project Lead: Janice Yelland-Sutcliffe

The project promotes integrative learning in that it prompts students to develop communication skills, connecting the different aspects of their theoretical learning with science/engineering learning at different levels and in different learning environments. These skills can also be applied to outreach on behalf of the university and subsequently in the workplace. The project involves experimental and interactive activities that will be applied into a real situation and will require a multidisciplinary approach and the interdisciplinary skills and knowledge of communication and project management.

Can an eportfolio contribute to your integrative learning aims?
Project Lead: Emma Crawford

See demonstrations of how an eportfolio was used to add different dimensions to a course or module for the Student Award, Vet School, Modern Languages Year Abroad, CELE Teaching Certificate and Vocational Maths. Some of the purposes that Nottingham academics want their eportfolio projects to address:

- professional competence demonstration
- preparation for professional development planning
- peer support and feedback
- skills diary
- goal setting and action planning
- work placement supervision
- collaborative working

Integrating Theory and Practice: MA in ICT & Education
Project Lead: Charles Crook

Limited experience of educational practice early on in a student’s career means there is a need to help them relate theory to practice. Moreover, overseas students, even when experienced, still have an appetite for learning about the practicalities of the UK system. Via site visits, students are exposed to a wide variety of situations and can meet with practitioners. These are documented through eportfolios which the student can control access and sharing of information via the web so practitioners and student peers can see the students reflection and add further commentary. It is hoped the process of experience, documentation and commentary will create a lasting record of the theory to practice for successive students to benefit from.

Modelling Postgraduate Professional Development
Project Lead: Sarah Kerr & Rebekah McGloin Smith

This project focuses on helping postgraduates identify and synthesise the skills developed in both formal and informal learning situations. The learning outcomes will be the development of enhanced workplace context skills, the identification and development of skills associated with formal postgrad. study and increased awareness of the skills required for employment. This is achieved by the completion of a mini-project based in each of the Graduate Centres, a process of self-reflection guided by Clare Jones in the Centre for Career Development (CCD), self and peer evaluation and feedback.
The aim of this project is to design an environment for creating an active online learning community, comprising students from all four years who would normally not have the chance for mutual academic interaction, thus, increasing the notion of students' belonging. The main aim of such an environment is to move the emphasis from "tutor's pre-packaged knowledge dishing" to social learning that promotes self-realisation and self-expression towards the collective knowledge creation through interactivity and cooperative effort of understanding. Learners will feel less isolated, have shared responsibilities for learning, and develop academic and transferable skills e.g. problem solving, critical thinking, written communication, etc. in cooperation with others.

Integrating the Year Abroad
Project Lead: Cecilia Goria

Integrating the year abroad project works towards the creation of a bespoke Learning Portfolio that suits the needs of a new assessment procedure for the students of the School of Modern Languages and Cultures who spend a year abroad as required by their degree programme. By providing the students with a personal environment to collect reflections on their experiences in the host countries, the project aims to ease the students' processes of keeping records of their achievements during this year and of writing their final essays.

An Action Research Approach to Assessment & Learning on a Second Year Classics Module
Project Lead: Lynn Fotheringham

This project revises the assessment procedures of a second-year Classics module. The Independent second-Year Project is a twenty-credit module inviting students to choose not only their own topics but also their own modes of presentation (artwork, performance, video, teaching-plan, creative writing, etc) to communicate some aspect of Classical Studies. This project has considered ways in which the assessment process can be redesigned in order to make it explicit. It has provided a clear framework of grade-descriptors for this non-traditional assessment method, therefore increasing the confidence of those marking and that of the students.

VENICE
Project Lead: Dave Hilton

This is about the development and evaluation of three dimensional simulations of clinical environments and tasks as a means for undergraduate student nurses to learn and practise clinical skills. The project will develop a virtual reality hospital ward complete with a range of simulated clinical activities and patients with varying problems. Students will be able to learn and practise clinical skills in a safe and controlled environment, prior to experiencing these activities during nursing practice placement. Using interactive whiteboards, lecturers will use the simulation as a visual teaching aid, with the ability to interact with objects and avatars (simulated people) in the ward environment in real time.

Undergraduate Research: Real Science, Real Skills, Real Prospects
Project Lead: Martin Luck

We have created an online record of undergraduate research, called BURN. It has multiple aims, firstly to promote the School’s undergraduate research and secondly, to expose students to the disciplines of publication. Staff in teaching Divisions nominated students who had done the best research of the year but excluded any whose work might be published elsewhere. Students (now graduates) were invited to submit manuscripts for light editing. The resulting articles, reporting significant research under individual student authorship, appear in a publicly accessible website. The showcase thus fulfills its aims whilst also illustrating the close interaction between research and teaching in the School of Biosciences.
Summary

- A collaborative CETL involving Nottingham, Leicester (lead) and University College London (UCL).
- The Nottingham component of SPLINT is run jointly by the School of Geography and the Institute of Engineering, Surveying and Space Geodesy (IESSG).
- This CETL will facilitate the development of a national learning and teaching resource for the enhancement of spatial literacy within and beyond existing subject boundaries.
- The centre will exploit developments in personal navigation technology, Geographical Information Systems (GIS) and Virtual Reality (VR).

Progress so far at Nottingham

- Work flows for creating 3D models and visualising them through lab-based and mobile projection facilities established.
- Exemplar applications for location-aware mobile applications developed and tested in the field
- Novel ‘virtual GPS’ facility developed. This involves the users position in a virtual model being transmitted as a GPS signal via Bluetooth allowing location-aware mobile applications to be tested in the lab before being tested in the field.

Curriculum Context

- The use of mobile devices and visualisation in teaching and learning, with emphasis on encouraging awareness and use of spatial context, have begun to be deployed within Geography and have played an important part in a full curriculum review at undergraduate and postgraduate levels.
- The use of these technologies in the engineering curriculum and other disciplines including sciences and humanities are being explored. Work packages from 2007 - 2010 will actively encourage the uptake of such techniques across a broader disciplinary base by developing case study applications suitable for use in non-geographic and non-engineering curricula. This process has begun through initial networking via the Pervasive Media Group and e-Learning seminars, but will continue through the creation of showcase events and a better web presence.
Further Details on Activities

Work flows are being developed to enable high-quality panoramic images to be created and integrated into interactive maps and virtual environments.

Creation of panoramas using high-spec digital SLR cameras on tripods fitted with panoramic heads.

The degree to which mobile technology can enhance learning in the field is being explored alongside some traditional techniques.

For many years printouts of computer generated landscapes have been taken into the field to explore landscape change – here superimposing a retreating glacier onto the real scene. Mobile technology is being used explored to potentially replace such techniques.

A model of the future developments on Jubilee Campus (above, courtesy of Paul Eyden in Estates) could form the basis of an urban equivalent of the ‘augmented reality application illustrated previously, ie: allow students to view planned developments in the field via mobile devices.

The potential role of mobile technologies is being evaluated against more established techniques in a variety of ways, including through student video diaries.

Lab-based and field-based visualisation is being integrated into the curriculum using state of the art Virtual and Augmented Reality technologies. From a pedagogic perspective SPLINT focuses not only on the techniques for creating virtual worlds but foster a critical awareness of the role of visualisation in society and the importance of understanding the nature and quality of the data which underpin the final virtual model.
RLO CETL: Capturing creativity in the development of multimedia learning.

The Centre for Excellence in Teaching and Learning in Reusable Learning Objects (RLO-CETL) has been in operation for two and a half years and in that time we have produced over 180 multimedia learning objects that have been used by over 5000 students. RLO-CETL is a multi-institutional collaborative project involving University of Nottingham, University of Cambridge and London Metropolitan University. At Nottingham, the RLO-CETL is based in the School of Nursing, in their educational technology research centre (just next to the university bridge into the Medical School).

So what are RLOs and how are they developed? The RLO-CETL defines them as web-based interactive chunks of e-learning designed to address a specific learning objective or goal. We have pioneered a widely acclaimed community approach to developing RLOs involving lecturers and students at the centre of the process rather than a top down technology driven process. RLO creation starts with a workshop (with no computers to be seen!) where lecturers and students work on the content and learning activities using A0 laminated posters to draft and redraft their ideas. Their creative ideas are captured digitally and used as the basis for the technical production carried out by learning technologists. RLO-CETL funding has so far enabled over 50 lecturers and students from University of Nottingham to attend these residential and one day ‘reward’ workshops free of charge and provided bursaries, and technical support, for miniprojects.
Evaluations from Nottingham students are providing valuable feedback, for example a nursing student said:

‘For me it was the visual aspect, actually seeing the concept visually was a huge bonus for me because it just made things click. We’d had key lectures and I’d read about things, but I think for me just to see how things worked visually was what I needed to put the whole picture together.’

Understanding how RLOs can support learning and which designs are appropriate in different learning settings is important. Our evaluation strategy is focusing not only on the usability of the RLOs but also on determining how their use can support students in ways that address the wider issues such as widening participation, differentiation and diversity.

We are developing tools that will allow RLOs to be adapted and repackaged not only for reuse but also for repurposing by local tutors. Creation of multimedia learning objects that can be accessed on mobile phones or ipods and designed specifically for use with electronic white boards are also areas of development for the RLO-CETL.

We work with a number of partners, including several of the Higher Education Academy national subject centres and other CETLs. We are already working with a number of University of Nottingham School’s and if you would like to contact us for more information please email Dr Heather Wharrad (heather.wharrad@nottingham.ac.uk) or Dr Richard Windle (Richard.windle@nottingham.ac.uk).

RLOs and details of RLO-CETL activities can be found at www.rlo-cetl.ac.uk.

More RLOs can be found at www.nottingham.ac.uk/nursing/sonet/rlos.
Visual Learning Lab and Innovations

As one of the four CETLs based at the University of Nottingham, the Visual Learning Lab is one of the early adaptors and a testbed for new technologies in visual learning and teaching. The Visual Learning Lab has been promoting innovative teaching and learning since its inception and is now keen to contribute to mainstreaming visual learning practices and exploring further innovative learning and teaching methods.

Here are some examples of VLL activity:

The VIRILE (virtual polymerisation plant) is used to assist engineering students who are unfamiliar with full-scale industrial plants.

Visual learning aids for computer graphics
School of Computer Science and Information Technology

This project aims to build a development environment which allows the students to create and manipulate virtual objects, i.e. to provide a constructivist alternative to the existing teaching mechanisms. The variables which can be altered and experimented with in the worlds will be based on the computer graphics theory for module G5BGRA (approx 80 students per year).

Developing problem-solving through visual learning in simulated, virtual & mixed reality environments
School of Chemical, Environmental and Mining Engineering (SChEME)

Recent advances in computer graphics and virtual reality technology enable students to engage from their university base with problem-solving learning in and through alternative environments such as a future workplace. Examples include the VIRILE learning environment developed as part of the university's flagship e-learning strategy (Chemical, Environmental and Mining Engineering) which replicates real industrial processes with over a billion discrete configurable states. This allows unlimited scope for student experimentation and differentiated problem-solving tasks.

Enhancing learning in pathology through the use of visuals
School of Molecular Medical Sciences

Pathology is a highly visual subject and effective teaching delivery relies on the availability of high quality visual learning aids. The subject is taught on 2 sites (at least), which means developed resources provide significant added value. The project builds on evidence gained from positive student feedback on a workshop where students used laminated coloured paper cells to discuss aspects of immunity (e.g. T helper cell interactions). Individual pieces could be moved around to show relationships, whilst students described the appropriate interactions.

The study will compare how students interact with the material and their perceptions of each method's pedagogical value. This will inform the development of further visual learning material for deployment in medical sciences and suggest ways to enhance student interaction and learning.
Understanding visual learning by using visual records
School of Psychology

This project is concerned with developing effective visual learning environments. To do so, it aims to understand more about the processes of visual learning by conducting empirical studies of learners interacting with such technologies. Rich descriptions of the learning process are taken which include: Prior knowledge and abilities (e.g. spatial abilities); Learning outcome measures; Video of individuals, groups using technology; Audio of speech; System logs and navigational data.

Visual widgets
School of Chemical, Environmental and Mining Engineering (SCHEME)

SCHEME has set out to test and develop 2D and 3D visual spatial skills while addressing fundamental scientific and engineering concepts. The project is developing a range of virtual, visual widgets accessible to a wide range of students. The project aims to explore transfer of virtual spatial ability and visual learning to ability in 'real' world settings and to provide guidelines of how technology might be most effectively used.

Assessment in geography via video production
School of Geography

In order to enhance and develop student learning some modules in undergraduate geography courses are being assessed via student produced videos. The VLL supports the further development of these visual assessment practices through providing two video learning suites in order to support staff and students using video media in teaching and learning.

Engaging staff in professional development through VL
School of Education

This project focuses on supporting research and development related to visual learning. The aim of the project is twofold:

- Establish an electronic archive of video data to support the development of learning and teaching at the university, and as a pedagogic research tool based on IRLTHE projects,
- Provide methodological support for staff (and students) using video data in their pedagogical research and development activities through an up to date literature review.

The outcomes of the project will include some ongoing technical support, an easily accessible video archive, a set of 'guidelines' for the use of video as a research tool and a set of visual learning-related resources.

VLL facilities showcased