



NUI MAYNOOTH
CENTRE FOR TEACHING
AND LEARNING

TEACHING FELLOWSHIPS 2012 - 2013



INTRODUCTION PROFESSOR PHILIP NOLAN, PRESIDENT

I am very pleased to announce the NUI Maynooth Teaching and Learning Fellowships 2012 – 2013.

These awards demonstrate our institutional commitment to innovation and development, and to identifying, developing and mainstreaming good practice in teaching.

We know as members of university staff that student engagement and student success require constant attention on our part to how we teach and how we foster student learning. We know also that we face real challenges with increasing class sizes, constrained resources and increasing expectations on the part of students and society. The Fellows see beyond those challenges and constraints and each of them is working on new, clever and creative ways to enhance learning. This year, the programme includes two Fellowships supported by the Access Office. This has broadened the range of themes to be addressed by the Fellows in their projects.

Not only are they considering how best to engage students in the classroom and through new technologies, but they

also address issues around inclusion, learning design for all, and the provision of practical supports for learning.

I look forward to seeing the outcome of these projects over the course of the Fellowship programme, to hearing about successes and lessons learned, and to understanding how the approaches used might be more widely implemented, to the benefit of all our students.

I would like to congratulate all staff involved, and thank them for their particular commitment to teaching in the university. It is highly commendable that such busy people give of their time and energy over and above the norm to work on enhancing teaching in a formal and structured way. I ask the entire university community to support them in their important work.

Professor Philip Nolan
President

As part of NUI Maynooth's on-going commitment to enhancing the student experience and the learning environment, this year nine Teaching and Learning Fellowship grants were awarded across the University.

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The NUI Maynooth Teaching and Learning Fellowships are designed to address the strategically important themes of student engagement and/or the first year experience. The Fellowship scheme, now in its second year, highlights the University's continuing commitment to excellence in teaching at both undergraduate and postgraduate levels. The Fellowships are designed to recognise and acknowledge individuals and groups who make an outstanding contribution to the student learning experience, to promote cross

disciplinary dialogue and to further support and stimulate innovative activity in Teaching and Learning across campus.

The Fellows come from a range of disciplines which include, Business, Chemistry, Computer Science, Education, Electronic Engineering, Geography, Music and Media Studies. The Fellowships are for a period of one year (2012-2013) and the Fellows will be supported through collaboration with staff from the Centre for Teaching and Learning (CTL). Each Fellow will present a report on their project at CTL's Showcase Event in May 2013. I would like to take this opportunity to congratulate the Fellows and wish them every success in the year ahead.

Dr Úna Crowley
Director of the Centre for
Teaching and Learning



INTRODUCTION MS ROSE RYAN

The last decade has seen NUI Maynooth respond positively to the challenge of widening participation among under-represented groups accessing higher education.

At NUI Maynooth over 25% of our full time undergraduates are now mature students, 1st generation access students and students with disabilities. NUI Maynooth is widely recognised as a national leader in both encouraging and attracting students underrepresented in higher education and in providing an extremely supportive learning environment during their time at the University. The HEA, in the National Access Plan 2008-2013, and NUI Maynooth in the Access Office Quality Implementation Plan, have articulated the need for more coherent, integrated approaches to the principle of institution wide approaches to mainstreaming and inclusion. The NUI Maynooth Teaching Fellowships acknowledge the importance of the student learning experience and by stimulating exciting innovation in this area are contributing to student retention, academic achievement and progression.

Crucially the Fellowships also aim to embed such developments in the mainstream fabric of the University thereby contributing to the development of NUI Maynooth as an inclusive campus which will enrich the learning experience for all students. The Access Office congratulates the successful Teaching Fellowship applicants and look forward to further exciting developments that enhance the learning experience for students at NUI Maynooth.

Ms Rose Ryan
Director of Access and Disability Officer

Designing Large Class Teaching for Inclusiveness: Introducing Universal Instructional Design to teaching Strategies, Learning Resources and Student Resources

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This project aims to address the development of strategies supportive of teaching and learning and the development of curricula and resources that encourage student engagement by addressing diversity and inclusiveness.

This project emerges from a longstanding concern of mine that large class sizes unintentionally discriminate against students on the basis of hidden learning problems (such as dyslexia and dyspraxia), physical disabilities, social challenges (such as feeling isolated in third level environments on the basis of one's class etc.) and cultural challenges (such as receiving instruction in a language other than one's first language, or in environments with unfamiliar instructional norms). Since 2008 I have taught increasingly large classes. In recent years, numbers taking these modules have approached 400. Due to the early stage of growth of my department and recruitment moratoria, it is unlikely that class sizes will reduce in the near future.

One of the key findings of the action research project undertaken for my PGDHE in 2010 was that large classes did not present a problem in themselves; rather it was the diversity which is found in such large groups that creates difficulties for students.

Business students, like students in every discipline, have many rationales for pursuing study in a particular career, but most modules continue to be designed, resourced, taught and assessed without reference to the diversity which is found in the student body. Often we unintentionally assume that the majority of our students are not at a disadvantage, or that they all aspire to same career goals as their lecturers. We then design, deliver and assess our courses with these assumptions in mind, which results in students being unfairly assessed or unintentionally penalized.

This project proposes to address this through a practice known as Universal Instructional Design (or Universal Design for Learning) which works from the premise that "barriers to learning are not inherent in the capacities of learners, but instead arise in learners' interactions with inflexible educational materials and methods" (Rose & Meyer, 2002, p.vi).

Rather than applying UID to one large class scenario, an action research project will be conducted with a view to developing knowledge and resources to enable lecturers in other disciplines to mainstream UID across university departments.

The project will be implemented in three distinct stages:

1. Instructional Design – An existing introductory module with typically has a large number of students will be selected. A systematic literature review on UID will be undertaken to identify best practice. The module's existing design will 'audited' to identify which areas need to be addressed in line with the following key UID elements
 - a. Learning resources and modes of engagement (It is generally recommended that these be made as multi-modal as possible)
 - b. Assessment (It is recommended that the mode of assessment be made as open and fair as possible to students).
2. Implementation of Design in Practice.
3. Evaluation of Design (at a mid-point and final stage with facilitated focus groups of students).



John Cullen currently teaches modules on organisational behaviour, leadership, management and business ethics at the School of Business, NUI Maynooth. He is interested in researching approaches to developing critical practice amongst students, large group teaching and engaging with diverse student populations.

Pilot Scheme for Learning Support for 1st Year Experimental Physics

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I propose to start a Physics Drop-In Centre for students who need extra help in adapting previous learning to being successful in First Year Experimental Physics. In the format of a 'Drop-In Centre', which will be offered at specified times each week, students could seek extra help in understanding material, participate in problem solving sessions, engage in peer learning and get advice in the experimental techniques required for the physics laboratory environment. This is particularly important at the start of 1st year to give students the skills they require in the subject and help integrate them into University life. It is a model easily adoptable for other subjects also.

As well as the formal lectures, tutorials and laboratories, this extra facility aims to help students who have limited experience in laboratory subjects like Experimental Physics and helps give them the information and tools they require to do well in Experimental Physics (laboratory techniques, problem solving, mathematical tools required specifically for Physics, computer skills etc.). This facility should also act a social outlet for the students to meet staff and other students.

The social and academic background of students entering 1st Science at NUIM is diverse. Typically many students (circa 40% of class) have not had the opportunity of taking Physics to Leaving Cert level and therefore feel overwhelmed at the start of the course. This alone leads to the students having varied learning needs with some requiring extra assistance, often struggling both with the academic level and the volume of material covered in the course.

Students entering via non traditional routes may also find the course difficult with many new formalisms as well as specific mathematical content in the physics material. This Fellowship project will offer the opportunity to formalise extra resources and facilities of the Experimental Physics Department, to schedule a Physics Support Drop-In Centre and allow students extra access in a friendly learning environment and a facility also to share experience in an informal way with peers.

This would be available to Access students primarily but also potentially available to the wider 1st year class who could benefit from the experience if we can facilitate more students. We typically have about 200 students taking first year physics so if we get up to 10-20% regular engagement with this resource, we would see 20 to

40 students per week which should be manageable for an initial pilot scheme.

It is envisaged that the funding would be used to pay postgraduate students a demonstrating fee to open the Drop-In Centre at specific times within the Science Timetable (e.g. 4 hours a week) as a pilot scheme. I will supervise and over see the delivery of this resource.

Obviously, the Maths Support Centre is already doing an excellent job in the area of Maths and this project aims to complement this existing facility. Through student feedback obtained over the past few years there is also potential demand for subject specific support in Physics where the discipline requires a different emphasis than the mathematical support offered by the Maths Support Centre.

Although we aim this facility specifically at 1st year students and their new experience of entering University we could also in the future expand the facility to 2nd Year students (depending on resources) who also may need help with the more difficult academic levels of their second year, although I plan to prioritise 1st year students initially and offer them this 'Drop-In' facility initially.



Neil Trappe qualified with a BSc. in Applied Physics from the University of Limerick in 1998. He completed a PhD. in long wavelength optical analysis techniques in the Experimental Physics Department in NUI Maynooth in January 2002, before continuing to work in this research area as a Post-doctoral Research Associate until June 2003. Currently he is employed as a Lecturer in the Experimental Physics Department. His research interests are in the field of far-infrared space optics, specifically working on the optic configurations for missions such as SAFARI SPICA, ALMA and the HIFI instrument for the Herschel Space Observatory (ESA project). He is an active member of the Far-infrared and Submillimetre Space Astrophysics research group in the department.

Achieving Fairness in Assessing Student Groupwork

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A key challenge for lecturers using group work with students is to find ways to maximize student learning from group projects while ensuring fair and accurate assessment methods. Teamwork and group projects are ubiquitous in education because they enhance the development of skills and knowledge particularly relevant to the real world, provide an excellent forum for experiential learning, promote collaborative learning, and help to more efficiently instruct large student numbers.

Beyond the pragmatic advantages to instructors of large classes, the learning benefits include the provision of opportunities to apply conceptual skills and theoretical knowledge; to experience and learn about group dynamics; to include tasks and activities more directly relevant to professional practice; to broaden exposure to different views and ideas; to increase familiarization with different perspectives and problem-solving approaches; to develop and extend interpersonal and social skills such as collaboration and networking; to work on larger, more comprehensive assignments individuals would not be able

to cope with; to increase student motivation and engagement; and generally to promote students' learning from each other.

Although the promise of group work as an instructional tool is rarely disputed, its use often brings about problems that limit and even negate potential benefits. Specifically, the difficulties associated with accurately and fairly assessing individual performance, conflict within work groups, and free riding of individual members are frequently cited problems associated with group work. Like many other instructors, I have long struggled with the challenge to find ways to maximize student learning from group projects while providing fair and accurate assessment methods and countering the potential negative impact of free riding and internal conflict.

The focus of this fellowship project will be on the use of peer evaluation of individual contributions to group work. Generally this is not possible with common assessment practices that focus on outcome assessment. Assessing such inputs (individual contributions) to group work requires a focus on complex group processes that instructors can usually not observe and assess.

I propose to roll out the use of a technology called Sparkplus to all students studying business in first year. These lectures are among the largest in NUIM averaging 450 students. Sparkplus is a technology designed to achieve the objectives of providing accurate and fair assessment, supporting student learning, and enabling group self-management.



Graham E. Heaslip is Deputy Head of the Business School and programme director for the MSc in humanitarian Logistics and Emergency Management. Graham completed his PhD studies in the area of Civil Military Cooperation / Coordination at the Logistics Institute, University of Hull, for which he was awarded the James Cooper Memorial Cup for best PhD in Logistics and Supply Chain Management by the Chartered Institute of Logistics and Transport. Prior to entering academia Graham spent fourteen years working in the Irish Defence Forces both at home and abroad in a variety of logistical appointments, as well as spending time seconded to Humanitarian agencies in a logistical capacity. Graham's research interests are broadly in the intersections between global logistics/ supply chain management, humanitarian logistics and organisational management development.

Peer-Teaching to Enhance the Learning Experience in the Chemistry Laboratory

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Chemistry is, in nature, an experimental discipline. The laboratory environment should be particularly effective to engage the students with the core reading material, as it puts into a practical context the theoretical principles discussed in the lectures.

In order to achieve the intended learning outcomes for each practical session, it is desirable that the students do pre-laboratory revision, by which the students read the experiments to be carried out, as indicated in the laboratory manual. They should independently research techniques and equipment to be used in the session, as well as revise the core course material related to the practical.

As the project for this fellowship, we propose to implement peer teaching in the pre-laboratory talks. Peer-teaching provides an effective approach to enhance the learning experience of the students, by means of providing a collaborative learning environment while, at the same time, encouraging independent reading and research and taking ownership of one's own work.

Students will work in groups of four, to highlight to their peers in a short "pre-lab" talk the key points of the practical session ahead with regards to i) Health and Safety ii) equipment or instrumentation, iii) chemical reactivity and mechanism iv) calculations. At the end of the presentation, the academic in charge of the laboratory will give constructive feedback to the students and will round up the pre-lab talk.

The students will use an interactive LCD touch screen display for their presentation. This technology lends itself particularly well to the teaching of Chemistry, which extensively relies in the visualization of chemical concepts, such as, for example, chemical structures. A graphical user interface like that offered by an LCD touch screen display would allow for the students to engage in a dynamic and interactive presentation, while providing the technological framework to develop problem-based exercises and enhance their peer teaching experience. While operating with essentially the same software as interactive white boards or Sympodium systems, interactive LCD touch screen displays offer a wider range of capabilities. Also, they are self-contained devices that can be mobilized to different locations.

This is an advantageous feature for the purpose of this project, as the interactive LCD touch screen display can be transported to the different laboratories where the practical sessions will take place.

To support the students during the preparation of the "pre-lab" talks, we will make available a "Pre-Lab Help Desk", by means of a dedicated teaching assistant (3h per week), who will help with chemical queries. We initially envisage implementing this project in the 3rd year laboratories (approximately 90 students). The presentations will run for 10-12 weeks (2 per week). The Department was recently awarded a Doctoral Teaching Scholarship, and we will encourage this student, who is required to do teaching related duties for the Department, to actively engage in this project, by assisting the students in the use of the interactive device.

We will also make use of the teaching resources in the Department to produce screencasts, so as to provide additional support on concepts discussed in the lectures applicable to the experiments.



Trinidad Velasco-Torrijos graduated with a BSc in Organic Chemistry from Universidad Autonoma de Madrid (Spain) in 1998. She completed her Ph.D in the University of Bristol (UK) in 2002. She moved on to carry out postdoctoral work at Ghent University (Belgium) and University College Dublin, as a Marie Curie Fellow from 2004-2006. Trinidad was appointed as a Lecturer in Pharmaceutical Chemistry at NUI Maynooth in 2007.

A virtual bridge between Maynooth and Kilkenny for Software Development Students

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The Department of Computer Science has recently received funding under the Springboard programme to run a one-year part-time (30 credit) Higher Certificate in Software Development (HCSD) in our Kilkenny Campus, with a first intake of 25 students scheduled for September 2012. The aim of this programme is to equip currently unemployed non-CS graduates with the basic skills in Software Development. Coupled with a work-placement programme, this will allow these graduates to access employment opportunities in a sector where there is still significant demand.

This new programme poses challenges on a number of fronts. These students will be mature students, returning to education (possibly after a significant gap), dealing with a wide spectrum of new technologies, and it represents the start of the department's formal involvement with our Kilkenny campus. The lectures and labs will be provided by academic staff commuting from the Maynooth campus, replicating the structure of the modules that are already being delivered at Maynooth.

The focus of this proposal is to provide an additional infrastructure, based around virtual learning technologies, to support these students. In particular, we hope to foster access to the educational environment at Maynooth by establishing a virtual bridge with our Kilkenny campus, linking the students in Kilkenny with their peers at Maynooth.

We propose to establish the equivalent of a "help-desk" on the Maynooth campus, staffed by undergraduate and postgraduate students from our existing degree programmes. The help desk would not be module-specific, but would span all six modules in the HCSD, and focus in particular on assistance with the core technological skills encountered on the certificate. Our experience to date with programmes in Maynooth has shown that developing confidence in such technologies, particularly the threshold skill of programming, can pose a significant barrier for students who are new to the discipline. All of the modules on the HCSD are already taught on our first and second year programmes at Maynooth, so we have a significant pool of students who are skilled in the relevant areas.

Since the students are based on a separate campus, the help desk would have to be virtual rather than physical. The university, through the CTL, has already made significant progress in pioneering and establishing assistive technology in this area, most notably the Moodle system, and is investigating others such as Blackboard Collaborate and Elluminate, and these can be used as a backbone for the help desk. We propose, however, to also investigate other technologies, most notably the virtual environment Second Life.

The impact and potential of environments such as Second Life on teaching and learning is still not fully established, but we believe that, in this context, they may provide an interesting and attractive approach to developing and fostering a learning community between our two campuses. In particular, the novelty of Second Life should appeal to CS-oriented demonstrators, and the existing technical environment in the department is well-suited to its use. Further, the use of such technology will in itself constitute a learning experience for the students on the HCSD, broadening their experience in Computer Science.



James Power has been lecturing in Computer Science for 20 years, 14 of them at NUI Maynooth. His research centres on program analysis for software comprehension and verification. In teaching he is particularly interested in standards of programming, as well as the use of primary sources in CS education.

INTERCEPT – Interdisciplinary New Technologies for Entrants to Reinforce Creativity, Enthusiasm, and Practical Thinking

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This project will be carried out collaboratively across the departments of Computer Science, Music and Media studies. It will be initially aimed at first years on the Music Technology and Media Studies degree programs, and if it is successful it will be accessible for all. The motivation is that many of the first year students of our interdisciplinary programs have an interest in both arts and technology. However, most students enter their programs possessing more artistic than technical skills. This is because such skills are more difficult to develop independently, due to a limited access to resources and a lack of mentoring. Recently, a number of non-PC based technical platform and interface innovations that inspire new ways of creating artistic works, both musical and multimedia, are available. These platforms include new tablet and mobile devices, the ipad for example, gestural controllers such as Kinect, and open-source hardware devices like the arduino or Raspberry Pi. Furthermore, commercial software

development environments such as Adobe Flash with action script offer great benefits to a novice programmer as they have many convenient built-in libraries for building complex applications that simplify low level device communication issues. By providing a learning environment through which first year students can access these easily technologies and the expertise to use them, it will stimulate their creativity early on in the program, enhancing their learning experience, and enthuse them to develop their technical skills to provide a facility by which their can realize their artistic vision. Furthermore, an excellent by-product of developing their practical abilities is that they have a broader portfolio when they seek employment, and therefore, extend the choice of industries for which they will be suitable. To date, one of the member so this project team has also been involved in the Maker's club that has been run at the Department of Electronic Engineering over the last three years.

This has been a very valuable experience. A similar model would be applied here where a lab space, with the necessary equipment and tutoring, being made available to the students on a weekly basis where they could meet and work on their ideas. The tutoring would be carried out by a combination of academic staff, technical staff and postgraduate demonstrators. Thus, the funding would be

put towards the cost of the demonstrator and equipment. To provide an end-goal, at the close of the second semester there would be an exhibition, managed by the Digital Arts Greenhouse, a new initiative from Media studies/Computer Science and the Music Department for developing the practice and profile of digital arts on campus.

This project should fit well with the aims of CTL as it would encourage the first year students to see the university as place of opportunity where (1) an individual can exercise creative thought, (2) take responsibility for their own learning and development, and (3) to take what they are studying and to consider how to realise it in the physical world.



Joe Timoney studied Electronic Engineering at TCD. In September 1999, he joined the Dept. of Computer Science at NUI Maynooth. He is closely involved in the undergraduate programmes in Computer Science, Music Technology, and Multimedia. His research interests are based in the area of signal processing, with a focus on musical sound synthesis.



Dr Victor Lazzarini is a Senior Lecturer in Music at NUI Maynooth. He teaches subjects relating to the intersection of contemporary music and technology, including computer music languages, electronic composition and musical signal processing. His research is also situated in this area, and amongst his recent publications is *The Audio Programming Book* (with R. Boulanger, MIT Press, 2010), a major reference work in the area of Computer Music.



Jeneen Naji is a Digital Media Lecturer in the Centre for Media Studies, where she coordinates and teaches on the BA Digital Media in conjunction with the Department of Computer Science. Jeneen's research is in the area of digital culture specifically exploring the impact of the digital apparatus on poetic expression. She is also a founding member of the NUIM Digital Arts Research Cluster along with faculty from the department of Music and Computer Science.

Navigating Other Worlds (NOW)

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This project will pilot the use of a virtual world platform for game-based learning (MissionV) to create a link between Third Year Science Education students (ED302: Teaching, Learning, Assessment and ICT) and a partner school in Tanzania.

It will promote creative approaches to curricular-based topics and develop opportunities for interaction, collaboration and reflection. The project is underpinned by a Development Education perspective and for both cohorts it aims to develop greater cultural awareness and appreciation of global context of Science and Maths Education. The Maynooth undergraduates will interact with second level students with whom they would not normally come into contact, while the Tanzanian students will have an international audience for work they will already be preparing for a national competition (Young Scientist Tanzania).

Working within a '3D virtual world', the BScEd students - and their avatars - will collaborate in small teams to construct and develop a resource that will enable them to teach (present, illuminate, explore, test understanding of...) some aspect of the Junior Cycle Science or Maths syllabus.

Starting at the same time, a small cohort of students in Tanzania will be asked to construct a 'virtual poster' of their Young Scientist Tanzania entry. As the environments, posters and other artefacts, created in this virtual world begin to take shape the students will be invited to 'visit' each other's spaces and interact asking questions and exploring the resources in a spirit of constructive critique and evaluation.

As the two student cohorts (and selected other participants) can navigate around and examine the resources created, the environment will enable interaction in relation to practical, tangible artefacts and discussion of the topics, as well as about how they are constructed and presented.

The process aims to challenge student teachers to consider new ways to mediate the Science curriculum and to interact in online environments in ways that motivate learners and foster creativity with the aim that they will be better equipped to introduce such an approach in their own teaching.

The Tanzanian link is a key aspect of the project and aims to illustrate the scope and potential for ICT to dissolve barriers to communication and by linking with our partners there we hope to raise BScEd students' awareness of Science teaching and learning in a global context.

The link comes from our department's involvement in the Young Scientist Tanzania (YST) initiative that was developed under the auspices of the Combat Diseases of Poverty Consortium (CDPC). The project seeks to maintain and strengthen the bond between NUIM and the YST initiative and will be supported by the colleagues working with schools in Dar es Salaam in a suitably equipped (ie technology-ready) school.

The project is a collaboration between the Education Department and MissionV (a not-for-profit organization that develops creative, immersive learning environments for schools: see www.missionv.ie).



Angela Rickard lectures on Educational technology on the BSc Science Education programme and on the Professional Diploma in Education and supervises Masters and School-Related projects.

Co-Director of Dissolving Boundaries programme, Angela has developed a number of technology-based initiatives designed to promote pre-service and in-service teachers' collaborative, creative and reflective practice.

Project Oriented and Problem-Based Learning

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Since its foundation in 1974, the University of Aalborg in Denmark has developed a world-wide reputation as a centre of excellence in 'Project Oriented and Problem-Based Learning' (POPBL), particularly in the disciplines of Engineering and Science (Kjersdam, 1994).

At Aalborg University, 'during the first year of studies, students learn to adapt to Problem-Based Learning (PBL), along with the acquisition of necessary basic knowledge within fields of mathematics, physics, information technology, and discover the relationships between technology, as well as the context in which the technology appears' (Moesby, 2002).

An independent evaluation of the Aalborg first year programme carried out by the Danish Evaluation Institute noted that it 'manages to have a very low dropout rate' and recommended that this educational model be adopted by other higher education institutions. (Moesby, 2004)

In November 2011 Prof Lars Peter Jensen from the University of Aalborg visited NUI Maynooth and facilitated two workshops, one aimed at a University-wide audience and one customized specifically to the Department of Electronic Engineering.

The author attended both workshops and later followed up with Prof Jensen to arrange a return visit to Aalborg by himself and two of his colleagues to find out more about how the Aalborg POPBL model might be adapted to the NUIM dept of Electronic Engineering context. This visit took place on June 25/26 2012. The visit was very informative and enabled us to see at first hand the project-labs set-up as well as meeting with a number of key academics (including Prof Egon Moesby) who were happy to answer all of our detailed questions and provide us with very useful documentation relating to the Aalborg approach.

Following the visit, the Author compiled a report in consultation with the above two colleagues detailing a proposed pilot project which could be undertaken over one semester within the Department of Electronic Engineering. The purpose of this proposed pilot project is to adapt on a trial basis the Aalborg POPBL model for use within an existing BE in Electronic Engineering Programme. The proposed pilot project was also presented at a subsequent Department meeting at which it was approved by the department.

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Bob Lawlor Following graduation in 1984 with a B.Sc in Electrical/ Electronic Engineering Bob spent seven years working in R&D with Sony Corp. in the UK and Japan. From 1991 to 2001 he lectured in DIT during which time he also completed his M.Sc.(Eng) and PhD degrees. In 2001 he took up a lecturing position at NUI, Maynooth.

Sustaining and expanding a “virtual portfolio” app

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This proposed project will build on a 2011-2012 Teaching Fellowship, which Fraser and Mooney were awarded, and which enabled them to pilot an innovative use of a software package they designed to run in a 3rd Year Geography module in Spring 2012. The software, which was put together in summer 2011 by Computer Science graduates under Mooney's supervision, allows students to create a virtual portfolio of photographs and 'tweets' based on fieldwork they conduct. The portfolio is peer-assessed in a fun and interactive way that students enjoy – 100% of respondents in a survey (n=83; response rate 60%) about the portfolio said they enjoyed doing the work. The project is group-based but with a strong and clearly-defined individual component, which students like.

This proposed project will extend and cement the gains made in the 2011-2012 pilot by running the software package twice in a 2nd Year Research Methods module in the Department of Geography. The module, which has 270 students, is a central part of the Geography Department's curriculum. Waddington, who leads the 2nd Year module, has joined Fraser and Mooney with a view to using the software to require students to conduct fieldwork in their home place (in Semester One) and in Maynooth (in Semester Two). The software is intended precisely for this purpose; however to make it work for such a large class size and accessible for an instructor with limited time, such as Waddington, the rollout requires additional attention from Computer Science experts. Bergin joins the team also and brings extensive expertise in the area of web design and app design.

The software package requires that students: conduct fieldwork using cameras, notepads, and maps; upload data to a central server; share their findings; and peer-assess and learn from what others in their group have done. As such, it encourages independent research and critical analysis by students. Insofar as the proposed project maps onto the all-important stage of teaching students in Geography about research methods, it also helps student to transit from previous learning contexts into

university learning. As a whole, then, this proposed project seeks to make sustainable a software package that supports a form of learning and teaching that influences, motivates and inspires students to learn.

Two CS students will work for eight weeks in summer 2012 to upgrade and in some cases re-design the software. Mooney, Bergin and Fraser will work closely with the students, with Waddington providing additional input as required.

The aim is to run the software with all 270 students in the middle of Semester One. Based on the experience of collaborating last year, this timescale is perfectly reasonable. Following completion in Semester One, the team will review and assess progress and, if required, redesign certain elements for running the software again in Semester Two. By that stage, the software will be finalised and ready for future use by anyone across the university and indeed beyond.



Alistair Fraser is a lecturer in the Department of Geography. His research areas of interest include land and agrarian reform in South Africa, globalization, and rural geography.



Aidan Mooney is a lecturer in the Department of Computer Science. His research areas of interest include Computer Science Education, large group teaching, novel teaching techniques and Internet security issues.

**CENTRE FOR TEACHING
AND LEARNING FELLOWSHIP**
DEPARTMENTS OF GEOGRAPHY
AND COMPUTER SCIENCE (continued)

TEACHING
FELLOWSHIPS
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26-27



Shelagh Waddington originally joined the Department of Geography in 1986 and is currently a lecturer whose teaching focuses on the development of geographical understanding and skills. She also is involved in teacher education as the Geography specialist on the PDE programme. Her research interests focus on learning and teaching, particularly on collaborative learning and use of ICT.



Susan Bergin is a lecturer at the Department of Computer Science. She is a member of the Computer Science Education Research Group and the Callan Institute. She received a National Award for Excellence in Teaching in 2009 from the National Academy for the Integration of Research, Teaching and Learning. Her research interests include computer science education, machine learning, statistical analysis and related software development.



CONTACT

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