ASSESSMENT

Five UCD Case Studies of First Year Assessment (Concept/Enquiry Modules)

Author: Geraldine O'Neill, Aine Galvin and UCD staff

Email: geraldine.m.oneill@ucd.ie (or staff contacts as in case studies)

Date: 21st February, 2011

Five UCD Case Studies that support
1st Year Assessment Design Principles and Practices

One of the key aims of UCD's Education Strategy (2009-2014) is '*To foster early and lasting student engagement',* which includes *:*

'A review and reform of the structure, outcomes, assessment and remediation strategies for first year, and in particular the first semester, to support the transition from second- to third-level and to adapt to the different needs of different students; The further development of approaches to engage and support students, especially in their first year, including small group learning, peer-mentoring, academic advice and mentoring, specific supports for the development of transferable skills and information literacy, and general welfare supports '.

To facilitate this transition to university learning, assessment design at module level in the first year needs to progressively move students from early low-stakes assessment – which build confidence – to more challenging assessments - for achievement. In addition, students need to be **engaged** and **empowered** in their learning experience in order to achieve **the level of social** and **academic integration** for successful first year learning (Nicol, 2009). The following 6 principles, based on a review of assessment literature, will assist you in the deliberative design of the first year learning experience, from a module design perspective (Table 1).

Table 1: The Six Module Design Principles
1. Allow students, where possible, have opportunity for regular, low stakes assessment with opportunity for feedback on their progress
2. Develop students' opportunities for in-class self and/or peer review of their learning against assessment criteria
3. Allow students multiple opportunities for <u>well-structured</u> and <u>supported</u> collaborative learning and its assessment (peer and group-work, project work)
4. Consider the redesign of the learning sequence of module learning activities in an efficient and effective manner, including the related blended learning opportunities.
5. Introduce more active/task-based learning which uses more authentic assessments (i.e. subject/discipline identity)
6. Consider the student work-load demands within the module, as well as in parallel modules

These principles reflect similar design principles for programme/school-level assessment, which also explore the more structural and integrative aspects of assessment design, i.e. developing space in the curriculum by use of more theme/concept approach to learning, mapping assessment across a stage. See *Designing First Year Assessment Strategically* available at: http://www.ucd.ie/teaching/resources/assessment/focusonfirstyear

A comprehensive resource *Module Design Principles & Practices for First Year Assessment,* based on these principles (n=30 pages) for module coordinators is available at http://www.ucd.ie/teaching/resources/assessment/focusonfirstyear It comprises a) Elaboration of these assessment design principles, based on the literature, b) International case studies/examples and c) UCD case studies or resources.

This shorter resource highlights five UCD first year case studies, extracted from the more comprehensive resource. Many of these cases address several of the module design principles above, in one module. Sometime these types of modules may also be entitled 'concept', 'theme-based' or 'enquiry-based' modules.

These resources are also supplemented by a podcast (Feb-May 2011): FOCUS ON FIRST YEAR, see http://www.ucd.ie/teaching/showcase/audiopodcasts/name,77075,en.html

1. UCD Case Studies of the Module Design Principles for 1st Year Assessment & Engagement	
Module Name & Code	**Computer Science in Practice (COMP10130)**
Describe the example and any evidence of success:	School of Computer Science introduced a core module "Computer Science in Practice" for all first years in semester 1, 2010-11. This replaced the elective module in semester 1, year 1. "Computer Science in Practice" introduces students to the breadth and depth of Computer Science, covering major areas of current activity and research in the School (including bioinformatics, natural computing, compression, web search engines, social networks, speech technologies); the idea is to give students the "very" big picture on what can be done with Computer Science. The module has a significant practical component, involving students in group presentations, additional topic research and development of related skills. Part of the module covers aspects of career development, including contact with graduate employers within the IT sector. The introduction of this new module is part of a wider strategy to reform stage 1 CS, which aims to: • Foster student identity with CS programme and a sense of belonging with both staff and students; • Help students gain an appreciation of the discipline and associated career opportunities; • Facilitate active engagement in learning though group work opportunities; • Encourage deeper learning throughout the semester through the exclusive use of continuous assessment in all semester 1 modules and full 15-week teaching semester.
What design principle(s) does it support? (see principles below)	Design principle 1 – Continuous assessment used throughout module using a Learning Journal (to engender lecture note-taking skills) and hands-on weekly practicals (to convey a deeper understanding of lecture topics) DP 2 – Group work projects are presented within the group and to the whole class; groups are re-configured every 3 weeks to break-up cliques and allow students to work with (nearly) everyone in the class DP3 – Students work in groups on well-structured tasks on each topic explored (for 3 hours each week). Module is taught in CS Active Learning Lab which is particularly conducive to group work and collaboration. DP4 – Students are immersed from the outset in research presentations on state of the art research problems. Blend of research problems, lectures, practical group-work tasks and exploration of related professional practice opportunities. DP5 – Active and task-based learning is at the heart of this module; teaching assistants are encouraged to challenge students in practical work, not direction but

	more a dialogue DP6 – Continuous assessment throughout this module facilitates spread of workload and assessment (the careers week was used to encourage students to also catch up on missed practical work). Combined with 15 week teaching semester there is space and time in module for review and catch-up.
What would UCD staff or students have to do for this to work? i.e. staff training, module/programme redesign, student support, …	Module requires the commitment of the leading researchers in the school (e.g., in CSI 6 Professors lecture on this course) to deliver lectures and follow-up in the practical sessions. There is a definite need to provide role models for the discipline. The Active Learning Lab is a key resource that facilitates group work and collaborative learning opportunities. All students work on open laptops during lectures and practicals. A colleague from the Careers Centre devised and delivered the careers component of the module; and a site visit to an employer was organized. Module needs to be coordinated and championed by senior member of school; to give it credibility and underline its importance.
Contact Number/e-mail of staff involved in the design:	Professor Mark Keane, mark.keane@ucd.ie Contact No.: 2481

2. UCD Case Studies of the Module Design Principles for First Year Assessment & Engagement	
Module Title & Code	**Principles of Scientific Enquiry (SCI10010)**
Describe the example and any evidence of success:	From September 2011, "Principles of Scientific Enquiry" will be introduced as a core module for all ~400 first year Science students, following a pilot offering with 36 students in 2010-11. This module introduces students to the principles of scientific enquiry through lectures and group work. Working in small groups, students in conjunction with their academic mentor identify a scientific problem, review the literature and develop a project plan. The work develops students independent study skills within a scientific framework. This module involves staff from all disciplines within the Science Programme and students are encouraged to undertake their project work in a discipline that is of particular interest to them. Using a project based approach; students learn communication and presentation skills, methods of sourcing scientific information, scientific writing and analysis. Formal direction on teamwork, communication, presenting, sourcing and appraising information, scientific reading and writing, and critical thinking will be central to this module. The feedback on this module has been positive. Both staff involved in the tutorials and the students felt that it raised awareness amongst students in relation to researching and citing the scientific literature and stimulated their interest in the scientific process. In many instances, it was the first formal training in scientific writing and communication. The small group design also

	facilitated direct engagement with academics and provided opportunities for social engagement between incoming students.
What design principle(s) does it support? (see principles below)	Design Principle 1 – Weekly group-work tasks provide regular opportunities for assessment of student progress. In-class contribution and engagement is assessed on an ongoing basis, as are group presentations and individual submissions of work. Students also complete a Learning Journal (which is assessed) as a means of reflecting on their own learning over the course of the semester.
	DP 2 – The group work project provides the focal point of in-class and out-of-class learning activity. Students present to each other as well as their academic supervisor on a regular basis.
	DP3 – Students work in groups on well-structured tasks for up to 6 hours per week. Half of the teamwork time is supervised by tutor or academic mentor, while the remaining independent teamwork hours are formally timetabled for students.
	DP4 – The module delivery is a combination of large group lectures, medium group workshop sessions and smaller group contact with academic mentor. The module is designed to integrate the development of key skills alongside the undertaking of a scientific project.
	DP5 – Active and task-based learning is at the heart of this module; students are encouraged to undertake their project work in a discipline that is of particular interest to them.
	DP6 – Continuous assessment throughout this module facilitates spread of workload and assessment. There is no terminal exam.
What would UCD staff or students have to do for this to work? i.e. staff training, module/programme redesign, student support, …	This module requires the commitment of about 80 academics to mentor a project groups in their discipline and in some cases contribute to lectures. Postgraduate tutors are recruited and trained to facilitate the workshops. Academic tutors meet with their group formally for 1 hour per week. A flexible teaching space is required to allow students to work in small groups on their projects. This module is coordinated and championed by the Dean of Science, to underline its importance within the Science Degree programme.
Contact Number/e-mail of staff involved in the design:	Professor Mark Rogers, mark.rogers@ucd.ie Contact No.: 2197

3. UCD Case Studies of the Module Design Principles for 1st Year Assessment and Engagement	
Module Title & Code	**Creativity in Design (CVEN10040)**
Describe the example and any evidence of success:	The "Creativity in Design" module is a core module for all 250-300 first year engineering students.

	The module aims to provide an active-learning engineering experience for first year students, through which they develop their observation skills, problem solving skills, lateral thinking abilities, visual and verbal presentation skills, team-working skills and information literacy skills. Students are introduced to the design/innovation cycle and the techniques and tools of problem solving and are actively engaged, through a series of group work exercises, in using these techniques. The module has been well received by staff, students and commended by the external accreditation body. Student feedback on the module is consistently positive and staff have remarked on the enthusiastic participation and good work that has been emerging. A selection of projects was exhibited to visitors and peers as part of Innovation Dublin 2010.
What design principle(s) does it support? (see principles below)	Design Principle 1 – Weekly facilitated studio sessions provide regular opportunities for closely monitoring student progress and attendance in addition to opportunity for providing formative feedback. DP 2 – Students are made aware of the grading criteria being used for assessment of their work. In the future team member evaluation and peer rating within groups will be introduced. DP3 – The studio setting in which the students work is facilitated by ME students who are trained to provide formative feedback, manage group interaction and encourage participation. This setting provides a supportive environment for collaborative group work to take place. DP4 – The module provides instruction on the tools used in problem solving, research and visual representation. The assignments provide an opportunity for application of the techniques and tools. The assignment briefs are deliberately open-ended, allowing scope for creative solutions to emerge. DP5 – The module is based around active participation and application of techniques and tools of problem solving, prototyping and visual representation and communication. The assignments set challenge students to solve real problems. DP6 – Student work is assessed using both formative and summative approaches in the weekly studio sessions. Students also submit an individual sketch portfolio towards the end of the semester. There is no end of semester examination in this module as the learning outcomes are assessed in the studio and through assessment of the sketch portfolios.
What would UCD staff or students have to do for this to work? i.e. staff training, module/programme redesign, student support, …	Facilitating studio work for relatively large numbers of students requires some consideration. In the case of 'Creativity in Design' the approach has been to train ME students to manage the studio sessions. Students on the Structural Engineering with Architecture ME programme have a core module in their 5th year called 'Innovation Leadership'. Within this module students develop their leadership, project management, teamwork and facilitation skills in addition to formally honing their problem solving skills. These students undertake all of the assignments in advance of the first year students and are responsible for running/managing the studio sessions every week, setting the agenda, guiding groups, encouraging participation from all students, scheduling presentations,

<table>
<tr><td></td><td>providing feedback, grading and reflecting back and reporting on the weekly studio sessions. A group of 5 ME students are assigned to facilitate studio work with 12/13 first year teams, each team having 5 members. This approach has been a very successful component of the module. Employers have also commented positively on the value of the training and education that the ME students have received through this module. The Review Group undertaking a recent Accreditation visit commented very positively on the initiative, particularly in relation to the link between the ME students and the first year students.

The space used for group work should be carefully considered. This space should be flexible and capable of being used as a comfortable workspace where model making can be facilitated, with white-boards and wall space available for displaying material. The space should also accommodate presentations, provide power points and wireless internet access.

Whilst there are formal lectures within this module the main focus is on active participation within a studio setting. Staff participating in this type of initiative need to be comfortable with both large group interactive teaching approaches and small group interaction. Consideration should be given to the assessment methods and processes used and aligning these with the learning outcomes of the module.

The production of a student module handbook is worth consideration. Within this handbook the module outline and learning outcomes can be outlined. The students' responsibly in relation to participation, attendance, submission of work and lines of communication can be set out. The assessment methods to be used and the grading criteria can be included, thus ensuring that students understand the standard of work expected relative to grade bands. Any equipment or materials that students are expected to obtain can be noted and the schedule for the semester can be included.

Group allocation can also be included in the handbook and possibly reference to group facility on Blackboard, if this is being used, this allows students to make contact electronically with their group members which can be useful if they don't already know each other.</td></tr>
<tr><td>**Contact Number/e-mail of staff involved in the design:**</td><td>Dr. Amanda Gibney, Amanda.gibney@ucd.ie
Contact No.: 3217</td></tr>
</table>

4. UCD Case Studies of the Module Design Principles for First Year Assessment and Engagement	
Describe the example and evidence for success:	**Module: Introduction to Human Geography I (Geography)** **N= 370 students in 1st Year. (2007, 2008, 2010)** This entire module was undertaken using an enquiry-based learning approach based around four authentic short case studies that were hosted in the online learning environment, Moodle. A very positive learning experience was reported in feedback and the importance of incentivisation and group responsibility were identified as the key factors in promoting engagement. **Any other comments on strategies for success:** Group exercises worked best when the students nominated someone from within the group to act as convener and pull individual information into a group submission. Be open to the lecture theatre becoming a little chaotic as a result of in-lecture group work, and more interactiveness. Our most important innovation was incorporating student work into our lectures. We took student-generated material from online discussions, submitted assignments and tutorials, and used it as content for our lectures. This gave students a sense of ownership of the module.
What would UCD staff or students have to do for this to work? i.e. staff training, module/programme redesign, student support, …	**How to organize group-work** (size, staff/student ratio, student chairs, etc) Group-work took place in both the large lecture theatre with 400 students and in smaller tutorial groups of 14-16 students. In the lecture theatre, the module coordinator asked students to sit in their tutorial groups and ensured that all lectures involved group activity and conversation. The groups were encouraged to think about a specific question which drew on their own experiences, and then various groups were asked to outline their findings to the lecture hall, holding a radio microphone in front of them. A large proportion of group work was undertaken in small group tutorials run by geography postgraduate students, both MA and PhD. We designed the tutorials and provided training on content for tutors. In advance of tutorials, students were assigned preparatory work that had to be submitted online prior to the tutorial. The tutorials involved debates, discussions, group map work and statistical analysis. Students were awarded marks for their preparation, attendance and participation in tutorials in line with clearly specified criteria. However, most group activity took place through the virtual learning environment. We encouraged students who missed lectures to talk to their groups or us about the material that was covered. We also assigned a number of group discussions that had to be undertaken and completed on-line, and subsequently formed the basis for individual submissions. Discussion boards provided the key mechanism through which students interacted with each other, but also scheduled face-to-face meetings to prepare group tasks.

	How timetabled: The number of formal lecture hours per week was reduced from two to one to allow time for e-learning and independent research, however the second dedicated hour was reserved for consultation, to allow time for student group work and to add in an additional lecture if it was considered necessary. Small-group tutorials for this module took place in weeks 2,5,8 and 11. Students could also engage with the module coordinators during office hours or before/after lecture classes.
Contact Number/e-mail of staff involved in the design	**Dr Niamh Moore, niamh.moore@ucd.ie; +353 1 716 8222**
Reference(s) if applicable.	Univeritas 21 (2008) *Designing a range of Enquiry-based learning approaches to support student engagement across a variety of disciplinary contexts* http://www.universitas21.com/TandL/Presentations/EBLposter.pdf Moore, N. & Gilmartin, M. (2010) 'Teaching for better learning: a blended learning pilot project with first year geography undergraduates'. *Journal of Geography in Higher Education*, 34 (3):327-344.

5. UCD Case Studies of the Module Design Principles for 1st Year Assessment and Engagement	
Describe the example and any evidence of success:	**Module: Literature and Context 1** **UCD School of English, Drama and Film** An enquiry based approach was used in this 1st year module of 500+ students. The students were organised into groups of 25, and then into 3-4 groups within that. Groups of 6-8 were felt to be appropriate, given some inevitable attrition. Two problems (enquiry) were developed: (i) students were to write a newspaper feature promoting the writings of Chaucer to the general reader; and (ii) students were to adapt or rework a scene, speech or character from a selection of Shakespeare plays in order to encourage teenagers to engage with the Globe theatre in London. We began with our learning outcomes and tied everything we did to them, using them constantly as the benchmark against which we judged whether the problems were appropriate and so on. We had in mind the chronological spread we were aiming at and located the problems within these parameters. For this particular project, with all of its operational complexity, the problems were the starting point, and the core of what we did; everything else in the module was then designed to support and facilitate students in the execution of those problems. Assessment: 25% Chaucer Group Project; 25% Shakespeare Group Project; 50%

	learning journal over the semester (submitted via Blackboard)
What design principle(s) does it support?	Module design principle 3-5
What would UCD staff or students have to do for this to work?	We did intensive training – one information day for interested tutors, a 2 day training session for those appointed and regular meetings during module delivery and assessment, plus email contact. From the initial decision to use EBL to delivery took a full 18 month period of planning, designing, testing, reworking, with regular review sessions in the year since we first piloted EBL for English
Contact Number/e-mail of staff involved in the design:	Associate Professor, Danielle Clarke, UCD School of English, Drama and Film, Danielle.clarke@ucd.ie 01-7168694
Reference(s) if applicable.	For more detailed information see: Clarke, Dillane, Long McAreavey and Pattwell (2009) Literature in Context : Enquiry Based Learning for First Year Students. http://www.nottingham.ac.uk/~aezweb/working_with_english/5/clarke_dillane_long _mcareavey_pattwell_2009.pdf Accessed 14.2.2011 Barrett, T., Cashman, D. (Eds) (2010) *A Practitioners' Guide to Enquiry and Problem-based Learning*. Dublin: UCD Teaching and Learning http://www.ucd.ie/t4cms/ucdtli0041.pdf