

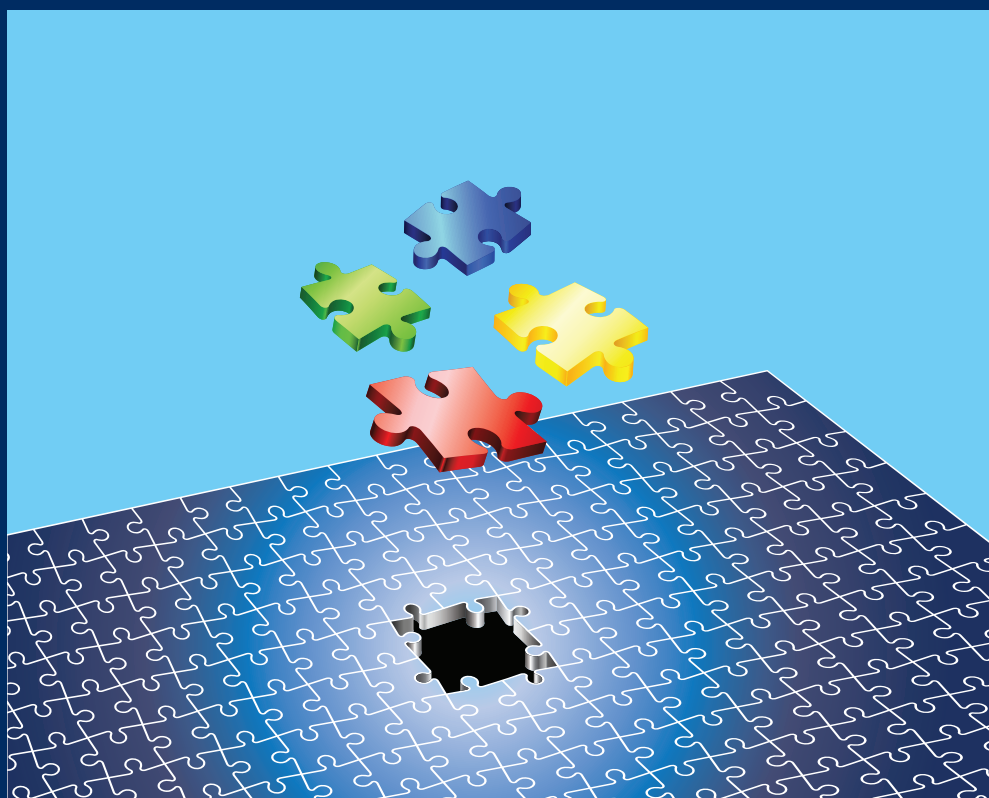


NAIRTL

National Academy for Integration of
Research, Teaching and Learning

Acadamh Náisiúnta um Chomhtháthú
Taighde, Teagaisc agus Foghlama

Making Connections: Intentional Teaching for Integrative Learning



Editors: Bettie Higgs, Shane Kilcommmins and Tony Ryan

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INTRODUCTION¹

The promotion of students' integrative learning in Higher Education has always been a feature of effective curricula. Traditionally a final year project, or capstone course, was designed to help students pull together the various skills, knowledge and understanding they had gained from multiple courses and experiences over their undergraduate studies. In postgraduate research, a good question would necessitate integrative thinking and learning. However, traditionally the learning that took place was not systematically analysed, and the facets of learning were not named. There was often an assumption that meaningful connections would intuitively be made by all students.

In this volume we document examples of programmes/courses/activities that are designed intentionally to build students' capacity to be integrative thinkers and learners. In doing so we try to analyse and name the learning that is taking place, and so make it visible to the reader. The work is intended as a resource for all those involved in teaching and student learning in Higher Education and beyond. The ultimate goal is to ensure that students in higher education can make meaningful connections within and between disciplines, for example by integrating on-campus and off-campus learning experiences, and tying together and synchronising different perspectives and ways of knowing.

THE ORIGIN OF THE IRISH INTEGRATIVE LEARNING PROJECT

The visionary Carnegie Academy for the Scholarship of Teaching and Learning (CASTL) Scholar's programme saw over 100 scholars supported in their work between 1998 and 2006. The theme of the 2005-2006 Academy was 'Integrative Learning', and built on the work of the American 'Integrative Learning Project: Opportunities to Connect' which had begun in 2003 led by the Carnegie Foundation for the Advancement of Teaching (CFAT) and the American Association of Colleges and Universities (AAC&U). The initiative was inspired by Boyer's four scholarships, in particular the Scholarship of Integration (Boyer, 1990), and by the need to address the sometimes fragmentary nature of a liberal arts undergraduate education. Integrative Learning is now named as one of the four 'pillars' of American Higher Education by the AAC&U.

In an effort to embrace this inclusionary and dynamic means of learning, an integrative learning initiative was developed in Ireland. The vision was to foster independent and connected learning across undergraduate, postgraduate and professional teaching programmes, in an age of modularisation and mobility. Using the CASTL scholars program as a model, funding was sought from the Irish National Academy for the Integration of Research, Teaching and Learning (NAIRTL). Involvement with the original CASTL program gave the proposers credibility within their own institution. It gave them confidence to invite in colleagues from other institutions, and to give the project a national name. In short it gave the project status. The proposal was awarded funding by NAIRTL, and in 2008 the Irish Integrative Learning Project was born.

THE IRISH INTEGRATIVE LEARNING PROJECT: THE PROCESS

Eighteen participants, from three institutions, form the core of the Irish Integrative Learning Project (IILP). The project has a strong staff development focus, and so it was important at the start to attract a mix of experience into the group. The participants were chosen for their potential to promote and document integrative learning and are all highly committed teachers who actively seek to pursue teaching excellence. They are based at University College Cork, Waterford Institute of Technology, and the Law Society of Ireland.

¹ Sections of this paper are adapted from an invited essay in the *International Journal of the Scholarship of Teaching and Learning* (Higgs, 2009) with permission of the editor.

Fourteen courses were the subject of enquiry, and are reported within this book. Research clusters emerged in Science and Mathematics, Economics and Law, Medicine and Health, and Arts and Social Science. In the initial year, it is estimated that the work impacted on close to 1,000 students. Building capacity for integrative learning involved helping students to develop certain attributes, as advocated by Huber and Hutchings (2004). These include students developing a sense of purpose that keeps them on track, fitting fragmentary information into a 'learning framework', understanding something of their own learning processes, and being self-directed learners with explicit learning goals. The integrative learner will ask probing questions to help resolve conflicts in their understanding, will monitor and reflect on their own efforts, and make choices that promote learning

How is integrative learning fostered? Huber and Hutchings (2004) suggest that teachers need to be integrative thinkers themselves, understand something of how students learn, and feel comfortable with a range of teaching strategies from which they can draw. They also need to design multiple opportunities for students to connect up their learning within and even between programmes. Integrative learning can be articulated as a programme goal or a learning outcome, and assessment methods can be devised to foster integrative learning. The IILP participants were willing to take risks with their teaching, try new approaches and, where appropriate, stand back and gift the learning to the learner (Malone, 2002). Sustainability is important, so that what has been learned by staff will remain within the institutions and benefit future students. Articulating these attributes of teacher and learner is helpful when mapping out new pathways to foster integrative learning.

Participants met regularly and sought to tease out the various threads to be considered within the conceptual framework of integrative learning. Collaborative workshops were used to build a shared meaning of integrative learning, where each participant shared insights and tested ideas as well as strategies. One aspect of the CASTL Scholars program that informed our work and proved particularly powerful, is the critical friends approach to staff development. This has helped participants to examine their work from another perspective, and to receive critique from a colleague who is an advocate for the success of their work. Participants were not only appreciative of the insights of their critical friend, but reported that being a critical friend was a useful learning experience. Furthermore, team members were encouraged to deliver papers and seminars at a number of national and international conferences, and they co-organised a one day symposium on integrative learning at the University of Nottingham. With this approach we could respect our colleagues, and support each other in moving to our own positions along the spectrum of scholarship, in relation to teaching and learning. In this way, we could demonstrate scholarship of teaching as an authentic practice, as advocated by Kreber (2007).

Senior scholars of the CFAT have synthesised the findings of the American 'Integrative Learning Project: Opportunities to Connect' in a public report published in late 2006 (Huber, 2006; Hutchings, 2006; Gale 2006; Miller, 2006). They divided their findings into four strands that capture the depth and breadth of integrative learning, and indicated clearly how they believe students' connection-making can be increased. They concluded that fostering integrative learning needs attention to curriculum design, pedagogy, assessment and faculty development. Their report provided a major resource for the Irish Integrative Learning Project, and allowed participants to map their courses and benchmark against this body of work.

The participants in the IILP agree with Huber (2006) that curriculum design can help or hinder integrative learning. Huber (2006, p. 2) says that *"getting everyone to think beyond*

the level of the course is a challenge”, but we must “build links into the regular curriculum, and create opportunities for all students to integrate their learning at multiple points throughout their college careers”. Huber advocates starting early, in the first year of an undergraduate programme, since building capacities to integrate learning takes time. Even at this early stage in the IILP we have evidence that integrative initiatives can clearly influence retention in the first year of undergraduate study.

The IILP participants are using pedagogies known to provide rich opportunities for integrative learning such as problem-based learning, seminars, learning communities, and building reflective portfolios. Using one or more of these pedagogies to design a module, or a whole programme, that is, integrating pedagogies, is advocated by Gale (2006) and Hutchings (2006).

Miller (2006) reports on innovative assessment practices which encourage students to connect-up their learning. In the examples in this book learning outcomes, assessment and teaching strategies are aligned to promote integrative learning. In the design of assessment, some participants in the IILP are simply asking their students to articulate their connection-making within or between disciplines, while others are seeking new holistic understandings, often via student reflective portfolios.

For students to engage in integrative learning, their teachers must intentionally model this form of learning (Hutchings, 2006). The IILP placed an emphasis on collaborative group work that assisted participants in the development of a toolkit of teaching strategies for integrative learning. Hutchings goes on to report that mechanisms for knowing how well students connect ideas within the discipline or across fields, between curriculum and co-curriculum, or between academic work and engagement with social and community issues are not well developed. Miller (2006) advocates making high quality examples of students’ integrative work public, so that staff can be kept in touch with what is expected, and build understanding of how it can be developed. Such documentation is a primary aim of the IILP. Hutchings sees the goal as ‘developed’ staff helping students to map out connections between cross-cutting literacies.

The IILP participants are helping to move the theoretical debate forward. Carl Weimann, a Nobel laureate, and Carnegie Foundation US University Professor of the Year in 2004, stressed the importance of advances in neuroscience to our understanding of how learning takes place, at his address to faculty in Dublin on 18 May 2009 (Weimann, 2009). If every act causes neuronal connections to be made (Greenfield, 2004), and learning is a physical process, it suggests that all learning is integrative. This challenged the IILP group to think about what exactly we were striving for in our project. To help with this debate Brendan Hall from the Centre for Excellence in Active Learning, University of Gloucestershire, UK, was enlisted as an associate member of the IILP, and led a discussion on the idea that there are threshold concepts within each discipline. These concepts are integrative, in that once grasped they transform the learners’ understanding, and help them to move from novice to expert (Meyer and Land, 2006a, 2006b). Here we have help for the thinly stretched academic teacher. The idea of threshold concepts brings the discipline back into centre stage in the teaching and learning debate. It is the disciplinarian who is expert and can articulate these key concepts, and design assessment and teaching strategies to help students master them. These ideas are helping to focus the work of the IILP participants.

International collaboration has been crucial to enhance and sustain our SoTL endeavours. We were delighted to hear that a Centre for Excellence in Integrative Learning at the University of Nottingham had received funding for a five year period, 2005-2010. The Co-Director of this Centre, Dr Alan

Booth, was enlisted as an associate member of the IILP. He visited UCC in 2009 to continue his own research into how disciplinarians perceive integrative learning. During this visit he assisted in evaluating the Irish Integrative Learning Project, and presented valuable critique. He uncovered the vulnerability that academics can feel when trying to promote new ways of teaching within their own discipline. He suggested practical pointers for staff development aimed at bringing evidence-based disciplinary projects to fruition. This collaboration led to an international symposium on Integrative Learning, in February 2010, to disseminate research findings.

An important outcome is emerging from some participants involved in interdisciplinary programmes. After assessing students for connection-making they are surprised by the findings of their own research. They discovered that integrated programmes do not in themselves lead to integrative learning. That is, assumptions that students will make meaningful connections unaided may not be well-founded. Separately delivered and assessed modules may be seen by students as parallel and unconnected. Such realisations empower teachers to become more intentional in their teaching to help students connect-up their learning. They suggest that we are deepening our understanding of how students learn.

The Senior Scholars at CASTL recognised the difficult task individual teachers had in influencing policy in their own institutions. Participants in the IILP report that this project provided a comfortable space for sharing ideas on scholarship and student learning that were central to their interests. They reported being better informed and more intentional about helping to build student attributes that promote integrative learning. They were encouraged to consider outputs and outcomes, and articulate potential short-term and long-term impacts on student and peer learning. Already several outputs have been achieved by individual or groups in the form of reports, articles, seminars for colleagues, and conference presentations and publications.

The work of the participants is beginning to influence the wider community. For example, integrative learning is being articulated in programme or module learning outcomes. Teachers are discussing the implications of integrative learning on their blogs. Postgraduate teaching assistants are reporting that their students require assistance to make connections between their courses. Through their engagement in the integrative learning project, the contributors have produced a clear and practical resource for all teachers which will develop a deeper understanding of the nature of student integrative learning. More generally, the project has facilitated the development of a learning community of academic staff researching into the teaching, learning and assessment practices of their colleagues. Participants themselves have become more intentional in their teaching and more aware of the possibilities for fostering integrative learning. They have had the opportunity to connect with other staff institutionally, nationally and internationally, sharing their experience of integrative learning techniques.

Finally, and most importantly, by helping students to make connections within and between disciplines, the long-term outcome of the participants' contribution will be to develop student capacities to deepen, connect up and integrate their learning in a variety of situations within and beyond their university experience.

OVERVIEW OF THIS BOOK

The specific contributions reported here include an examination of practices in one professional programme, two postgraduate programmes, and several undergraduate programmes. They encompass issues of assessment, curriculum design, and pedagogy for integrative learning.

The examples relate to a diverse student population, encompassing traditional student intake from second-level schools, mature students and those coming via adult education, and postgraduate students. The integrative practices documented include the use of reflective learning journals, problem-based learning, dynamic web-based tools, field-based learning, clinical simulation, drawings and mind-maps, information literacy workshops, and the use of art as pedagogical and assessment tools to facilitate integrative learning.

An overall aim of this research project was to document examples of integrative learning in Higher Education in Ireland, and to produce a clear and practical resource for all teachers. The spread of disciplines reported here is seen as a particular strength of the project. It ensures that there is a rich seam of material from which to observe integrative practices in different programmes, faculties, and institutions and at different levels.

In chapter one Professor Tony Ryan describes how a series of integrative teaching sessions in a Neonatal Intensive Care Unit at Cork University Hospital was evaluated using three media: written comments, a drawing and/or a mind-map. The media were employed to enable medical students to express the kind and diversity of learning that occurred in the care unit with a particular emphasis on humanism. In total, he considered 250 evaluations of medical students. The objective of this project was to give the students an overview of newborn medicine from different perspectives, thus teaching beyond the diagnostic and therapeutic core concepts. His research determined ways in which he could demonstrate that emerging doctors are aware of and appreciate teaching that helps them to think integratively and, ultimately practice as reflective, humanistic doctors who care.

In chapter two Dr John Considine required students to reflect upon their own behaviour in relation to the design of, and completion of, coursework essays in a *"Law and Economics of Competition"* module that is delivered to final year Bachelor of Commerce students. The objective of his project was to encourage students to reflect on whether their behaviour is *"economic"* in relation to the choices they make in respect of the coursework. The research shows interesting results in the titles and timing of coursework essays; the level of collaboration that students could engage in; and the number of assignments that could be submitted.

In chapter three, Daniel Blackshields focused on an undergraduate economics course entitled *"Reasoning and Persuasion in Economics"*. During the academic year 2007/2008 students were asked to develop their reflective journals so as to facilitate their engagement in autobiographical learning. Such learning would enable them to develop their own problem-solving expertise and experience with economics, thereby deepening their learning. The project focused in particular on three reflective journal entries which the students completed as part of their assessment: an entry *On Being a Critical Thinker* the objective of which was to encourage students to consider the form and content of economic arguments as presented to them via the media of magazines, newspapers, books, and television; an entry *On Being a Scientific Thinker* where students had to develop a memorandum on the ill-defined problem of the *"Crisis in the Housing Market"*; and an entry *On Being a Problem-solver in Economics* which focused on the students' overall reflections on their learning experiences in the module.

Dr Sinéad Conneely and Walter O'Leary, in chapter four, examine the integrative learning potential of a new criminal justice degree programme that was recently introduced at Waterford Institute of Technology. Their objective was to determine the extent to which integrative learning was taking place at first year and third year levels by using a problem based learning assessment. The problem based scenario was examined by all of the lecturers in the core disciplines. Students in first year and third year were asked to complete a simple survey on their perceptions of the problems posed, and how integration might be improved in the course.

In chapter five Dr Shane Kilcommmins outlines the deficiencies of formalist legal education which, in focusing exclusively on the mechanical applications of rules to facts, ensured that learning was not integrated into the realities of legal practice. It was not integrated because it did not examine the psychological or sociological ways in which facts were constructed; the social, cultural, political, or economic environments in which decisions were made; the moral or ethical contexts in which decisions were made; the psychological dimensions of decision-making; the texture of language that often gives rise to a number of legitimate interpretive choices; how the law operates in practice; or what the political and social realities of legal practice are. He examines an attempt to combat this deficit in legal education through the introduction of a novel clinical Masters programme in Law at UCC. In particular, he examines the extent to which learning journals (which were written by thirty students in the 2007/2008 academic year) facilitate and demonstrate integrative learning on the clinical Masters programme.

In chapter six, James Cronin attempts to test the assumption that entrants to the humanities (in this case art history) are information or data literate. This is an assumption often made and largely unchallenged. In particular, the chapter reflects on the employment of a series of information literacy workshops currently being delivered in History of Art, University College Cork. These sessions, in partnership with librarians in the Boole Library, University College Cork, were dedicated to the critical understanding of the Web for the disciplinary study of art history. It is clear that the availability of information technology ensures that students have greater access to information than ever before, but the author questions the degree to which it can be assumed that students know how to access appropriately the mass of content in a discerning and ethical manner? Employing information literacy workshops within a disciplinary study such as art history can bridge unperceived gaps in knowledge, not least because they create a space for students to participate, and practice the necessary skills.

Dr Martina Kelly and colleagues, in chapter seven, discuss the traditional approach to medical education which was largely taught and assessed as a series of distinct disciplines, with the emphasis on the accumulation and demonstration of knowledge. It was implicitly assumed that graduates would demonstrate a professional manner and that core skills and competencies could be picked up 'on the job'. Such an approach has now increasingly come under attack, not least because of the increased recognition of patient autonomy and the contextual variation of care. In 2007, University College Cork introduced a new curriculum which fosters horizontal and vertical integration of learning. The focus of her study is a third year module in clinical practice. In particular, this paper focuses on the role of case histories as an integrative assessment method in medical education, and the degree to which they actively promote the 'making of connections'.

In chapter eight Marian McCarthy questions how she can discover "*performances of understanding*" for academic staff that will provide evidence and draw out their knowledge of teaching and learning and advance it? In particular, she considers the role of the 'Arts in Education' as a catalyst for integrative learning. A series of workshops were conducted to explore the nature of integrative learning. Participants visited the Glucksman Gallery and took part in a two "Arts in Education" workshops. The class groups considered a number of questions in the context of the workshops, specifically in relation to the ways in which the art works acted as catalysts for learning across the disciplines.

In chapter nine, Dr Pat Meere focuses on the launch of a new BSc in International Field Geosciences at the Department of Geology at University College Cork. It rests upon a backbone

of existing modules that are the foundation of current geology programs at three partner institutions: University College Cork, the University of Potsdam in Germany, and the University of Montana in the US. The driving impulse behind the new programme was the growing international demand for geoscientists with integrated field skills. There is a consensus that field based studies offer a wonderful opportunity to take a more 'holistic' approach to studying geology. Pat focuses on the development of field-based learning in an intercultural setting, specifically assessing a controlled field mapping exercise carried out by the students in the Beara peninsula before and after mobility in an attempt to assess the added value of the field experience amassed while based at the University of Montana.

As a result of the Legal Practitioners (Irish Language) Act 2008, the Law Society of Ireland had to introduce an elementary Legal Practice Irish (LPI) course ensuring that trainee solicitors would have a basic training in the Irish language. Dr Maura Butler was asked to implement the programme. In chapter ten, she outlines her journey. In particular, her research question focuses on the extent to which information and communication technology could act as an integrative learning tool which would counteract the significant barriers to learning the Irish language.

In chapter eleven, Nuala Walshe *et al* examine the extent to which clinical simulation facilitates experiential learning and thus the development of clinical competencies on a nursing degree course at UCC. Clinical simulation is thought to be useful in that it helps integrate theory into practice, emphasises the value of team work, and the development of communication skills. It also offers the opportunity to make, recognise and rectify mistakes in a safe controlled environment.

In chapter twelve, Dr Catharine Pettigrew examines the hybrid PBL curriculum design used in the BSc (Hons) in Speech and Language Therapy, University College Cork, and whether or not students perceive it to be integrated, and/or facilitative of integrative learning. As a part of this study she determines what sources students draw from to facilitate their learning (e.g. discussions with colleagues, the internet, lectures/workshops etc). Data for this investigation was gathered from students' reflective journals, carried out as part of their PBL journey through the degree.

Dr. Bettie Higgs reports, in chapter 13, the effect of a field-based module on students' understanding of how they learn. Before the field course students believed they learned best by listening to the lecturer and taking good notes. After the field course, their perceptions had broadened and their understanding of how they learn had deepened.

The Irish Integrative Learning Project has developed and sustained a learning community of integrative teachers who document examples of integrative learning (Ryan et al, Chapter 14). The vision is to grow a multi-institutional, multi-disciplinary project to promote research that fosters integrative learning in higher education institutions in Ireland. All of the contributors to this book would like to acknowledge the institutional support they were given in carrying out their projects, including the various heads of department, directors and programme coordinators, and collaborators who made the project possible. The students too, who were the sources of all of the empirical data, were very generous with their time and insights. NAIRTL, which provided the funding for the completion of the project, deserves special mention. The Academy sets itself the very worthy objectives of promoting and establishing good practice in teaching and learning in higher education. We hope that this project will contribute in some small way to achieving those objectives. Finally, many of the contributors have engaged in postgraduate courses of study which have been organised and coordinated by *Ionad Bairre*, the Teaching and Learning Centre at University College Cork. The knowledge and networking, and most of all, the enthusiasm and energy harnessed through *Ionad*

Bairre has in no short way contributed to the completion of the project. Teachers have been stimulated to enquire into their own teaching and learning, and to integrate their own research into teaching and learning in more innovative ways. Most importantly, students have enjoyed the benefits of more engaged and scholarly teachers.

Dr Bettie Higgs, Dr Shane Kilcommins, Professor Tony Ryan

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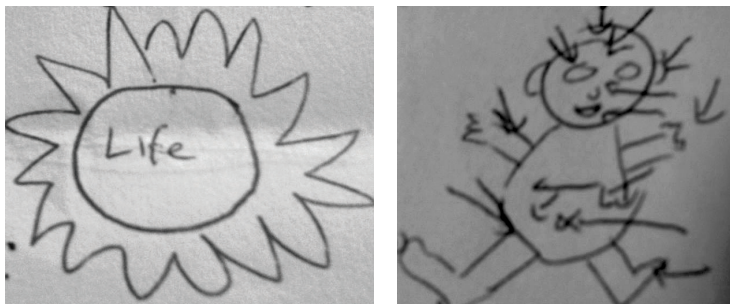
We are grateful for the funding received from NAIRTL under the National Awards scheme.

DRAWING ON MEDICAL STUDENTS' REPRESENTATIONS TO ILLUMINATE CONCEPTS OF HUMANISM AND PROFESSIONALISM IN NEWBORN MEDICINE

C. Anthony Ryan



We teach to change the world



INTRODUCTION

"One of the essential qualities of the physician is interest in humanity, for the secret of good patient care lies in caring for the patient" (Frances Peabody).

The Changing Context of Medical Practice and the Deprofessionalisation of Doctors

Medicine is changing fast. It has become increasingly scientific, technological, commercialised and commoditised (Starr and Bellman, 1992). Doctors are burdened by the knowledge dilemma, with medical knowledge doubling every five years, of which 85% is obsolete within fifteen years (Robinson, 1993). Managed care, medical liability, cost control, the pressure to see more patients, and consuming paperwork have created significant stressors for doctors (Theodosakis and Feinberg, 2000). As a result, Pellegrino claims that the modern doctor has become deprofessionalised, *"bereft of the essentials of the character traits associated with good doctoring"* (Pellegrino, 2002). This hardening of the heart (Newton and O'Sullivan, 2008) seems to begin early in medical school when

medical students “are handed scalpels to dissect the cadaver, the ideal patient, since it can’t be killed, never complains and never sues” (Fadiman, 1997, p. 23).

Medical curriculum designers, including those of the University College Cork (UCC) medical school, have been addressing these issues, through a number of pathways. The first was through an integrative curriculum that eliminated the barriers between subspecialties (horizontal integration), and introduced a systematic apprenticeship-based clinical exposure from the onset of medical training (vertical integration of basic sciences and clinical practice). The second thrust, in response to the knowledge-overload dilemma, was towards improving problem solving abilities and critical reasoning. The third focus intended to promote humanism in emerging doctors by expanding and enhancing the role of the humanities in medicine and to explicitly address the so-called ‘hidden curriculum’ of medical professionalism.

Humanism, which generally refers to the quality of being human, is a particular approach to medical professionalism. The ABC mnemonic (Altruism, Beneficence and Compassion) is useful way to remember some of the positive qualities of the humanistic physician, who has been defined by Louisa Coouts and John Rogers as one who:

- Respects patient’s viewpoints and opinions in a shared partnership of care;
- Attends to the psychological well-being of the patient;
- Regards the patient as an unique individual;
- Treats the patient in the context of his or her family, social environment and physical environment;
- Has good communication and listening skills;
- Engenders trust and confidence;
- Demonstrates warmth and compassion and is empathetic.

Most evaluations of teaching sessions or courses are through student completion of a standard evaluation form, often of a tick-box, Likert-scale variety. These often give a limited evaluation of the learning experience. For this project I encouraged students to write, draw and create a mindmap of their learning experience, following bedside education, in an attempt to determine if I could gather a more global or holistic description of their learning constructs. In particular I wanted to look for evidence of integrative learning and humanistic themes, in addition to practice based themes.

FRAMING THE RESEARCH QUESTION

A number of years ago, I modified my clinical teaching through a teaching model called MUSE, originally developed to make the arts more accessible to children (Davis, 1996). I started examining new ways of student engagement, introducing new topics and perspectives that I had not previously considered. I used role-playing, role-modelling (“Teacher Always”), Socratic style questioning, teaching by objects, peer learning and reflective inquiry. Essentially, I tried to become a more integrative and student-centred teacher. I was more willing to accept and explore diversity among students (different learning styles, awareness of culture, context, past experiences, reflective inquiry and multiple entry points to learning). I began to see myself as a facilitator, a reflector, a mentor and a novice researcher in medical education (Widdefield *et al*, 2007; Ryan 2009; Ryan, 2010a; Ryan, 2010b). My educational approaches could be summarized into three distinct but interrelated foci: *Inquiry*: posing open-ended questions without right or wrong answers; *Access*: appealing to a wide range of learners and *Reflection*: providing opportunities for my students to think about their own learning.

I teach newborn medicine in a Neonatal Intensive Care Unit (NICU) to fourth-year students of a five year medical programme. I have used my teaching opportunities to explore the clinical, but also the humanistic side of newborn medicine, in the firm belief that we need doctors who are both scientifically competent (“high tech”) but also “high touch”. My research question was: *In what ways could I demonstrate that emerging doctors are aware of and appreciate teaching that helps them to think integratively and, ultimately practice, as reflective, humanistic doctors who care?* I decided to expand my standard teaching evaluation form to include a request for a student drawing that encapsulated the single most important idea they gained from the tutorial, and to complete a mind map of the question: ‘How would you know you were thinking like a doctor?’

THE CONTEXT, THE SUBJECTS, THE LESSON PLAN AND THE EVALUATION TOOLS

In order to appreciate the student experience, a brief description of the context of this study, in addition to the main actors (the babies, their parents, the health care workers and the students), and the lesson plan are required.

1. The Neonatal Intensive care Unit (NICU)

Cork University Maternity Hospital was the clinical setting for this study. About 1200 babies (12-15% of 9000 annual births) are admitted to the NICU each year. Most of these are term infants. However, approximately 120 extremely premature babies (less than thirty weeks gestation or birth weight or < 1500 grams birth-weight) are admitted. Care in the NICU is based on the principle of Family Centred Care: involving the parents in the care of the baby and using environmental and therapeutic approaches geared to minimise the negative auditory, visual, and often painful tactile stimulations that the babies experience.

2. The Babies

*“My mother groaned, my father wept, into the dangerous world I leapt;
Helpless, naked, piping loud, like a fiend hid in a cloud.
Struggling in my father’s hands, striving against my swaddling bands,
Bound and weary, I thought best to sulk upon my mother’s breast”
(William Blake, “Infant Sorrow”).*

A Term baby: William Blake’s newborn is a lively term infant. S/he is breathing vigorously at birth as indicated by the loud piping cry. S/he has good muscle tone and a good suck signifying that no oxygen deprivation occurred during her birth. His/her parents are biologically programmed (Als, 1992) to interact, interpret and meet the immediate needs of their baby by drying and swaddling him/her, and placing him/her upon her mother’s breast.

Preterm babies: Approximately 5% of the 60,000 babies born in Ireland annually are preterm (< thirty-seven weeks gestation). The premature infant is physiologically, anatomically and biologically unsuited for the world. S/he is too weak to breathe through underdeveloped lungs and prone to apnoea (breathing pauses). S/he is vulnerable to hypothermia, low blood sugars, jaundice, infection and bleeding in the brain. His or her chances of having a disability such as cerebral palsy are ten-twenty times that of a normally-formed term baby. From the moment of birth S/he requires assistance with basic physiological functions such as breathing, thermoregulation and nutrition. This is the function of the modern NICU. As neonatologists and neonatal nurses, we are dedicated to improving both the survival and long-term quality of life for babies born too soon, too small or too sick to

cope on their own. Newborn care workers have been trained to provide professional assistance through an impressive array of technology, medications and nutritional options. However, there is mounting evidence that our preterm infants need more than technological intervention to survive and flourish. Als has shown that excessive uncontrolled arousal and stress can have serious consequences for the developing premature brain (Als, 1999; Als *et al*, 2004). Stressful interactions impact on the architecture of the developing brain by disturbing the neural connections that develop over the first few years of life, with negative implications for subsequent cognitive function (Chugani, 1997; Rakic, Bourgeois and Goldman-Rakic, 1994).

"Everyone can master a grief but he that hath it."

(Anon)

3. The Parents

This account describes the stress and intense emotions, some of them highlighted, of a new father's initial perspective of the NICU:

*"It was five hours before they called from NICU to say Emily was stable enough for me to go to her. Holding my camcorder, I entered the NICU. I felt as if **everything was in slow motion**. The sound of **beeping, ringing** and alarms really struck me. In the second cot on the right, was our little baby girl - **so tiny** in the middle of this huge cot. She had wires and pipes connected to her tiny body, a ventilator in her mouth and a tube going into her umbilical cord. I stood in silence, I could hear **people talking** but it sounded as if they were **miles away**."*

*"The consultant came over and explained that she really was a miracle baby. Her birth weight of 566 grams was small but she was growth-restricted as well. Her head was the right size for her 25-week gestation, but her body was not. They told me that the next 48 hours were **critical**. We had been warned that we were embarking on the **biggest emotional rollercoaster** of our lives. I had originally thought this a bit extreme - little did I know!"*

*"When I arrived back with Annabelle and our parents, I think the **stress** was clear to see. I tried my best **to keep up the front** (you know, nothing affects me, I can take it). I explained as best I could - what I had seen and been told. I tried to keep it clear and concise, with no flowery words, just the facts. **Honesty was very important**, something both my wife and I agreed on."*

*"I showed Annabelle the video I had made of Emily and **she wept**. The size of Emily was not really clear on the screen, but a mother's first sight of her child should not be in this way. Emily survived the first 24 hours and Annabelle was taken down to see her daughter. Despite having tried to prepare her, **it hit her hard**. **Time felt very precious** and we had Emily baptised."*

*"Every day then had the same routine - I rang and spoke with Annabelle, then rang the NICU at 10 a.m. to see how Emily had coped through the night. **Lack of control** was one of the most **powerful and frustrating** issues I felt. All parents feel a lack of control; it's a vital issue while **helplessly** watching their*

children suffer. To help understand how I felt, remember the first baby you became very **attached** to. Imagine coming to visit him everyday, not as a nurse, but as a mom. During your time with him you wanted nothing more than to help him through the **difficult periods**, hold him, dress him, change his diaper; but **you were powerless**. **Every single thing that happened to him mattered!** It mattered not only for the moment but for the future: his eyesight, his lung disease, his ability to walk. There may have been brief moments where you were helpful, but the baby's life was truly **in the hands of others**. This lack of control is very **intimidating** to parents and is often interpreted as **failure**". (www.bliss.org.uk/)

4. The Health Care Team in the NICU consists of doctors, neonatal nurses, physiotherapists, occupational therapists, speech and language therapists, social workers, care assistants, ward clerk and secretarial support.

5. The Students: Every Monday morning at nine a.m. during college term, I meet up with about twelve to fifteen fourth-year medical students in the NICU seminar room. The students have a scientific background in anatomy, physiology and pharmacy. Most of their training to date has been uni-professionally. But during their visit to the NICU, the students will see the above professionals collaborating in the care of these tiny babies.

6. The Lesson Plan was as follows. The structure remained the same for each group but the content and pedagogical approach varied according to the NICU activity, patient accessibility and parental consent.

- **Environment:** I tried to create a safe and interactive learning environment, by explaining my teaching style, that I would be asking questions, but that there would be no assessment or judgments of any individual student.
- **Expectations and Engagement:** I explained that my expectations were that they would be involved, engaged and interactive. The group size was large for a bedside teaching session. If they couldn't hear or see what was going on, it was their responsibility to say so. I directed questioning to include all students at some time during the session.
- **Prior Experience and Diagnosing the Learner:** I enquired as to what were they expecting to see, what prior experience of newborns they had and what do they wanted to get out of the session. After some looks of bafflement, students began describing some personal experiences ("My sister had premature twins recently: I did not know what to say to her, she was so upset") and prominent stories about neonatology in the media.
- **Upon Entering the NICU,** they saw a picture of kangaroo. I asked a student to read aloud a pamphlet on the advantages of Kangaroo Care (skin to skin contact between baby and parent). They washed their hands and I allowed time for them to wander around the unit. I encouraged them to follow Sir William Osler's dictum of more than a century ago: *Observe, record, tabulate, communicate. Use your five senses. Learn to see, learn to hear, learn to feel, learn to smell, and know by practice alone you become expert.*
- **Multidisciplinary Stories:** They were encouraged to seek out a variety of possible stories in the NICU (the bedside nurse's story, the attending doctor's, and the parents' stories, the house-keeping staff, from nurses, biochemists, physiotherapists, occupational therapists, care assistants, housekeeper, pharmacy technician). I would

often initiate the interaction and leave them for a few minutes to chat and talk, having asked questions such as: *“What part of your job in the NICU do you enjoy the most? What are your most difficult challenges?”*

- **Parent’s Stories and RPP:** Following consent, they took a history from one of the parents. I introduced the students to the concept of a Review of Parent Perspectives (RPP) by asking the parents a few simple questions: *“What are your biggest worries about your baby?”* Other perspective taking questions relate to parents understandings of their baby’s illness, what have they been told (seeking prior knowledge) and also determining who was there to support them.
- **Examining babies:** Physical examination of the babies consisted of student observation of the baby cover (technological attachments, colour, size, activity, features), then colour, followed by counting the baby’s respiratory rate (Cover, Colour, Count). Using the four stage skills teaching method (Lake 2004), I demonstrated how to examine a baby.
- **Additional activities** depending on time included: X-ray interpretation; a look at common drugs stored in the drug fridge; a visit to the milk kitchen where expressed breast milk was stored, discussing the possibility of erroneously administering the wrong mother’s breast milk to another baby (which indeed had recently occurred).
- **Reflection:** Return to the seminar room for a summary and reflection on the morning’s events, using the following questions:
 - What Happened?** Describe your experience of the session. Who did you meet?
 - So What?** What did you think, how did you feel about that encounter? What assumptions did you make? What power relationships did you observe? Can you describe the encounter from a different perspective (person, country, culture)?
 - Now What?** What do you think and feel now? Has your perspective changed? What conclusions can you draw from that encounter now? What future action will you consider/ take? How can you transfer the learning and experiences to other clinical situations?

THE EVALUATION TOOLS:

1. **Written comments** were based on the following reflective statements and questions given to the student:
 - Who were the people I met?
 - What I observed:
 - What I thought and felt:
 - How did it relate to my past experience?
 - What have I learned from this experience?
 - What helped my learning?
2. **Drawings:** A simple pencil or ink drawing was requested of the students that represented their most memorable experience during the tutorial. No constraints and no obligation to create a drawing were made.
3. **Mind-map:** The central theme of the mind-maps was: *“How do I know when I am thinking like a doctor?”*

RESULTS: EMERGENT FINDINGS AND BROADER SIGNIFICANCE

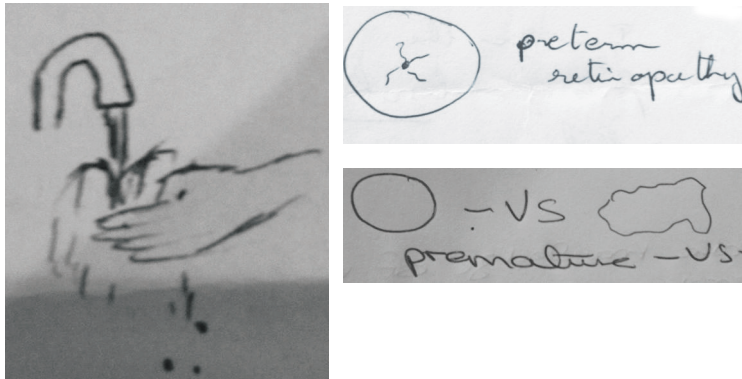
In total, 250 evaluations were examined. All students provided written comments, 85% made a drawing while 92% of students completed a mind-map.

1. Written Comments: Many students said they were *“initially uncomfortable”*, even *“scared”*, (in a pre-liminal state Meyer and Land, 2003). when walking silently around the NICU and observing *“the vulnerability of the tiny infants”*. It was an *“interesting setting”*... *“different from other medical settings”*. They became *“more comfortable”* when guided by the tutor. Almost all students expressed words of appreciation to the parents (for their courage and willingness to share their stories) and the various health professionals they had met, acknowledging their roles and their perspectives. Written responses also provided specific evidence of the students take-home message, usually referring to new clinical skills observed or acquired. The review of parent perspectives (RPP) and the approach to the newborn examination (Cover, Colour, Count) were by far the most appreciated new skills.

2. Drawings: The pictorial depictions suggested awareness of practice based learning (integration between basic science and clinical knowledge, interdisciplinarity, and reflections on students’ own learning). Other pictorial themes were of a humanistic nature: (compassion, communication with parents and ethical awareness). My intention here is to take the reader through the educational experience by means of the students’ drawing.

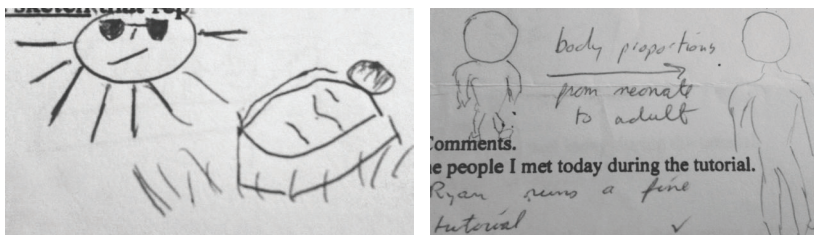
1. Practice Based Themes
• Integration of basic sciences
• Interdisciplinarity
• Student self-learning
2. Humanistic/Professionalism Themes
• Empathy: Compassionate care
• RPP. Parental communication
• Ethical awareness of complexity and uncertainty in Medicine

A. Practice Based Drawings: Integration of Newborn Medicine with the Basic Sciences (physiology, anatomy and pharmacology)



Figures 1-3

Newborns, especially premature infants, are immunologically immature, hence the importance of good handwashing (Figure. 1). When asked how they would explain to parents that their child had retinopathy of prematurity (ROP: Figure 2), none could recall retinal blood vessel development and how oxygen toxicity, among other factors, can lead to blindness. With prompting, they recalled from embryology the development of the premature babies brain from the smooth surface of the brazil-nut (at twenty-four weeks gestation) to the walnut whorls of the mature baby's brain (Figure 3). They were beginning to see the importance of that lecture way back in second year medicine but also its irrelevance since it was not integrated clinically. 'Chunk and dump' is a signature characteristic of the non-integrated curriculum.



Figures 4 and 5

They depicted how babies with jaundice are treated with special wavelength of light called phototherapy, humorously represented here (Figure 4). They showed an appreciation of pediatrics (0-sixteen years) as an integrative specialty of development and growth, as they compare baby and adult proportions (Figure 5). Some students expressed surprise at how neonatal nurses and doctors manage to insert intravenous lines into such tiny babies (Figure 6).

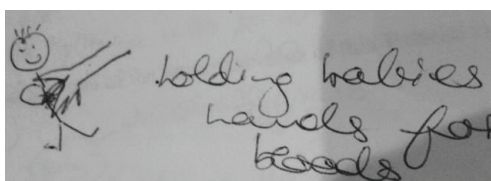


Figure 6

The students were able to acknowledge that premature babies do feel pain, a reality denied

for decades. And yes, Mary Poppins (*Just a spoonful of sugar makes the medicine go down!*) was right: 24% sugar dissolved in water is an effective, short acting analgesic empirically supported in the pain literature (Stevens *et al*, 2010: Figure 7).

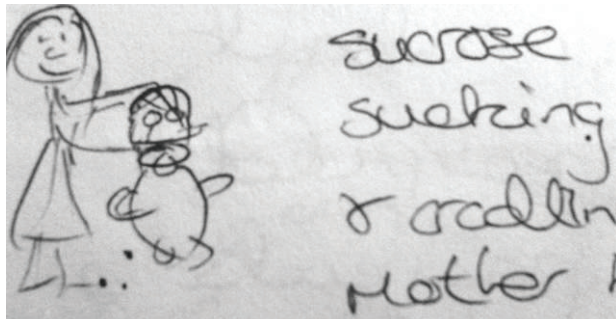
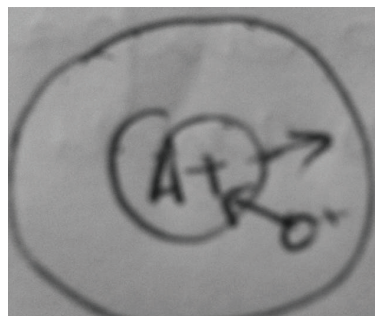
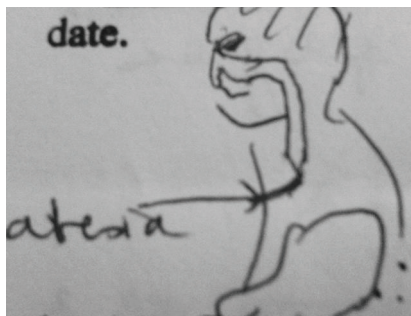
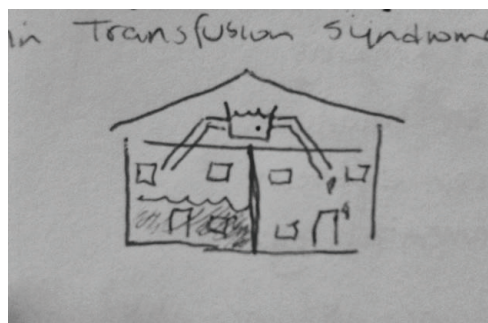
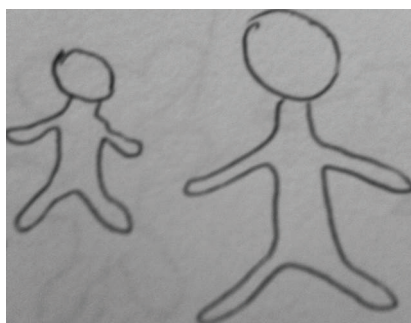


Figure 7



Figures 8 and 9

In their drawings, students depicted congenital anomalies (oesophageal atresia or a blocked oesophagus: Figure 8), the mechanism of blood group incompatibility (Figure 9) and the presentation of twin to twin transfusion with a pale smaller 'donor' twin and a larger, ruddy, 'recipient' twin (Figure 10).



Figures 10 and 11

For one student, the explanation of twin to twin transfusions through a plumbing metaphor was memorable (Figure 11), and possibly transformative in understanding of this non-intuitive concept.

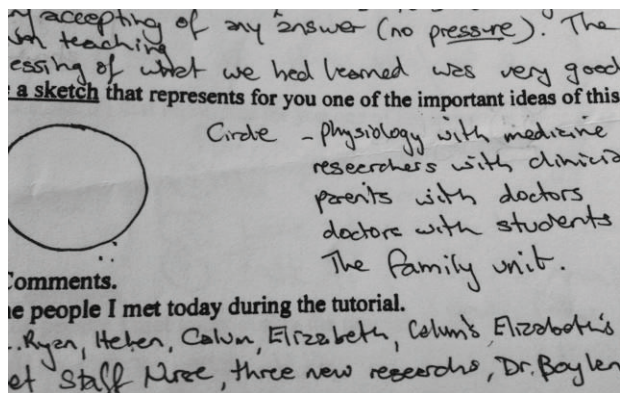
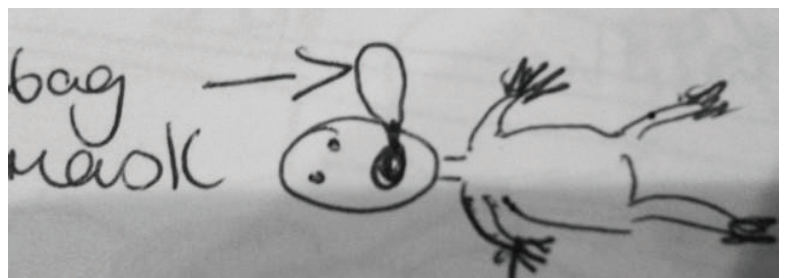
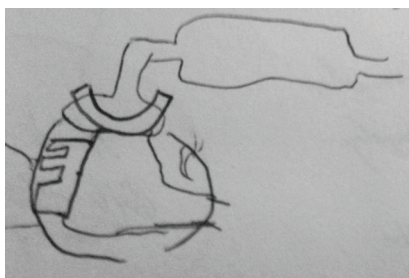
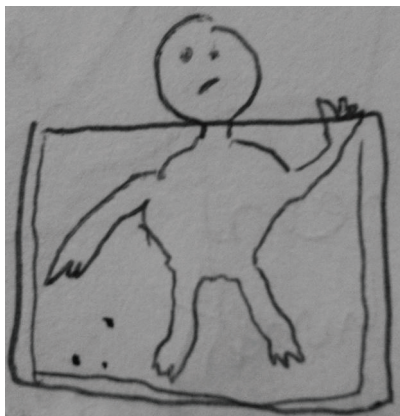


Figure 12

This student has described the concept of integration across multiple disciplines through linkages with physiology and clinical medicine, researchers with clinicians, patients with doctors, doctors with students and links with and within the family unit all coming together (the circle) in an integrated way (Figure 11)



Figures 12-14

During some teaching sessions, I conducted scenarios of infant resuscitation using baby mannequins and involving the neonatal doctors. Immediate formative feedback was provided to the doctors upon completion of the scenario. These workplace-based scenarios left an impact on many students, as they showed in their drawings how newborn premature babies are kept warm during resuscitation using simple plastic bags (Figure 12) and a bag-mask device was used to help them make their first vital breaths (Figure 13 and 14).

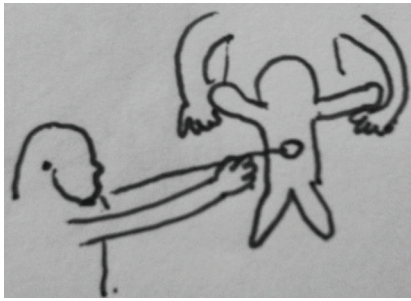
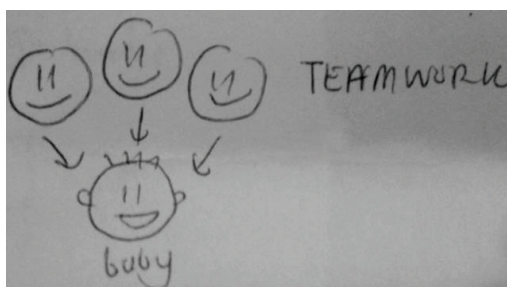
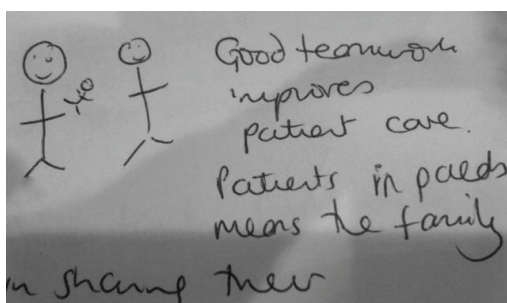
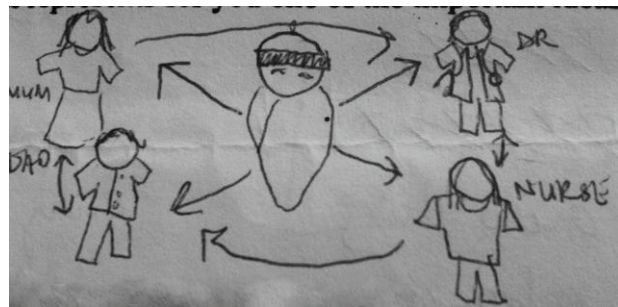
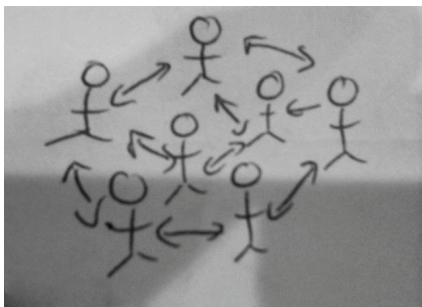
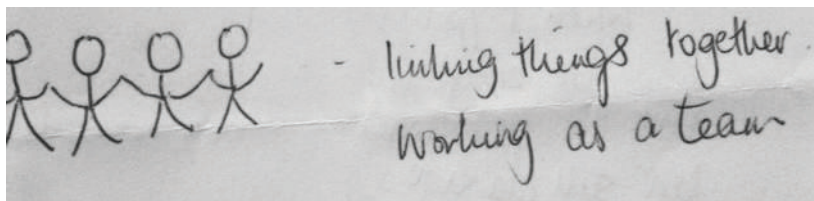


Figure 15

Examination of the newborn is opportunistic in that one cannot listen to the baby's heart effectively or count the respiratory rate if the baby is crying. One student demonstrated the importance of examining the baby while contained within his/her parent's arms (Figure 15).

Interdisciplinarity: Another practice-based theme to emerge from the drawings relates to interdisciplinarity (Figures 15-19).

Intensive care is a team sport thus entailing a willingness to participate and to look for multiple perspectives. When they have heard the nurses and other health professionals talk about their professional roles, the students began to see that medical perspectives and roles are just one part of the larger puzzle of family-centred care.



Figures 16-20

Learning by narrative: One student recalled, through an interesting drawing below (Figure 21), a mother's story of the birth of her premature twins. Her waters broke unexpectedly and she went into premature labour. The first twin's umbilical cord prolapsed into the birth canal, putting this twin at risk of immediate death. The local GP held the baby's head from pressing on the cord for a three-hour ambulance journey, until the babies were delivered safely by emergency caesarian section.

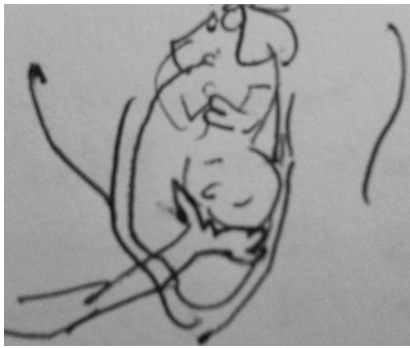


Figure 21

B. Humanistic Drawings:

Representations of Compassion, Identification and Communication: There were many drawings of the fragile newborn in overwhelming environments. A baby exposed without borders in an incubator was loneliness personified and magnified in one student's perspective (Figure 22).

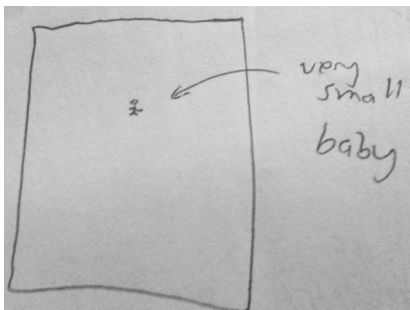


Figure 22

'Shhhh' ... A student calls for a 'closed warm comfortable space for babies' (Figure 24) while another draws how premature babies can be "nested" to give them the limits and support they had in the womb (Figure 25). The students saw tiny babies lying on their parents chest, close, warm, skin-to-skin and almost womb-like, the so-called 'kangaroo care', which has been associate with improved outcomes for extremely premature infants (Figure 26).

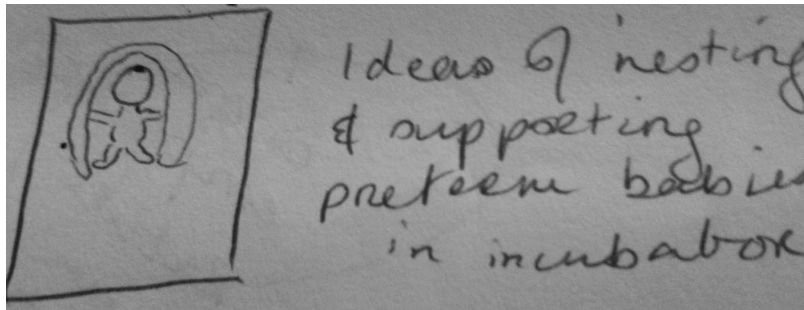
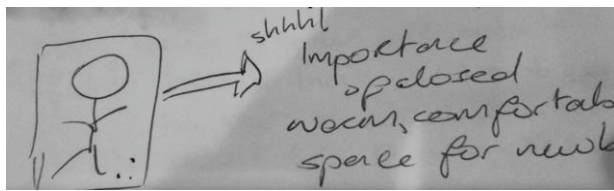


Figure 23-26

The NICU is a 'softened' technological-dominant environment. The students commented on this (Figure 27) but recognised the technology as an essential part of newborn care.

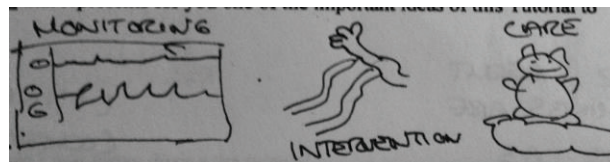
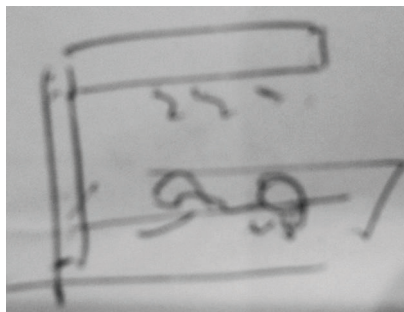
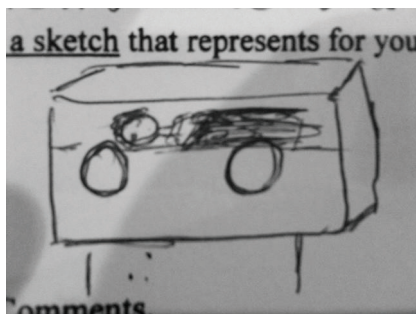


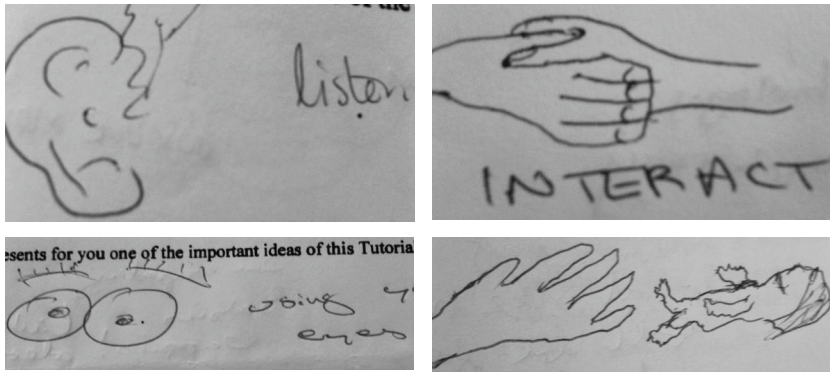
Figure 27

Students were fascinated and even 'overwhelmed' just looking at these tiny babies in incubators and under radiant warmers (Figures 28 and 29).



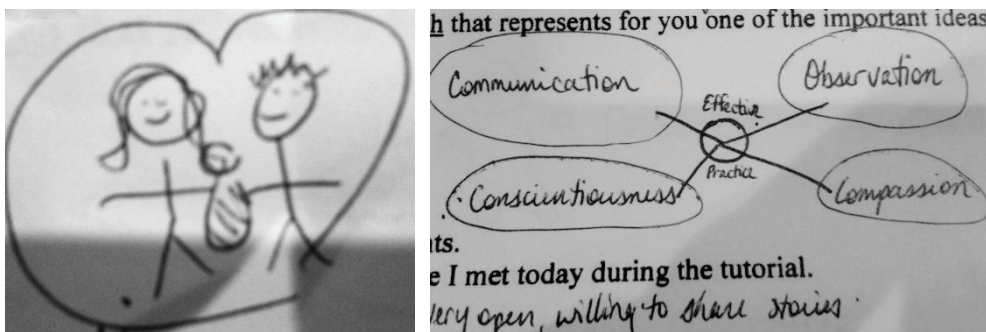
Figures 28 - 29

There were many illustrations of the importance of communication, between doctors, nurses and parents. This was represented by a number of drawings related to communication skills. These were often depicted in the form of 'ears' to represent listening, eyes to represent close observation and hands reaching out to offer comfort.



Figures 30-34

Other inclusive drawings showed that students grasped the concept of a three-way relationship, between parents, baby and the health-care team (Figures 35 – 36).



Figures 35 and 36

In one teaching session, students became aware of how fathers were often in the background and sometimes overlooked by the health care team (Figure 37).

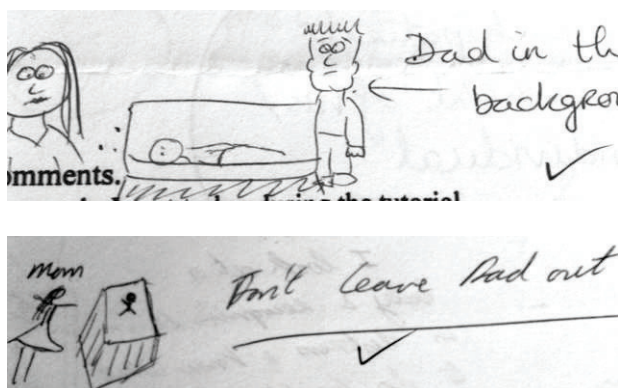


Figure 37

A number of drawings showed awareness of the mother's perspective (RPP). This illustration below (Figure 38) showed the sorrow and powerlessness of a mother separated from her baby by technology and monitors. She can only dream of happily holding her baby again. In a study done in our unit, Buckley (1998) showed that of four major sources of parental stress and anxiety (appearance of baby, sights and sounds in the unit, staff-parental communication

and altered parental role), the latter was the most pronounced. This stressor can be addressed by involving the parents in the daily care of their baby, supporting him during painful or uncomfortable procedures and providing extended periods of skin-to-skin contact in a quiet comfortable environment (Kangaroo care).

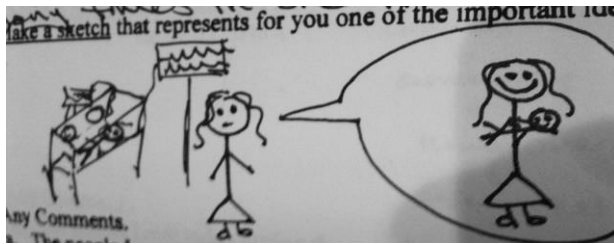


Figure 38

Attachment (or bonding) develops through interaction between parents and their babies (Bowlby, 1988) and knowing that the parent always offers a safe haven from which to explore the larger world is the basis of a secure attachment. It is not clear what a student meant by this drawing of a mother and baby in a canoe (Figure 39): perhaps a feeling of being alone, adrift, in an uncertain journey and unknown future. Whatever the interpretation, the illustration does show humanistic, creative, higher order thinking.

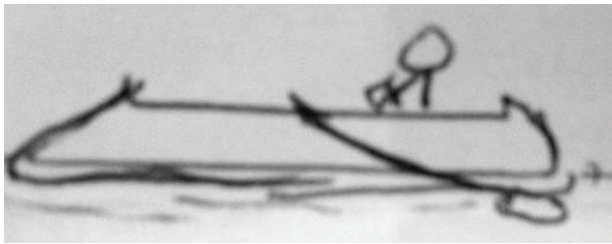
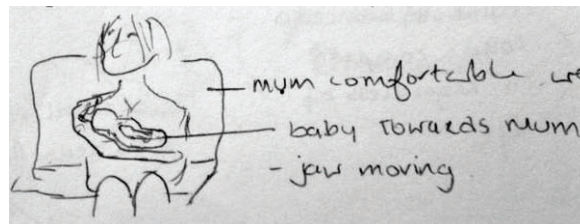
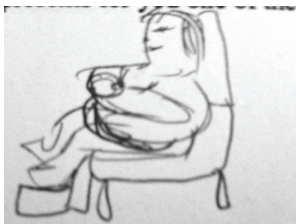


Figure 39

Most students had read about it, but had never actually seen a mother breastfeeding. Their drawings showed that this practical demonstration of breastfeeding was, for many, the most memorable experience of the session (Figure. 40 – 41).



Figures 40- 41

Ethical dilemmas: Dealing with complexity and uncertainty was another theme that emerged from the drawings. Working in uncertainty is disconcerting and troublesome: it is a liminal state, teetering on the edge of knowing what, but not how to think like a doctor. Initially in their development, students may believe there is an answer to every problem (Figure 42).

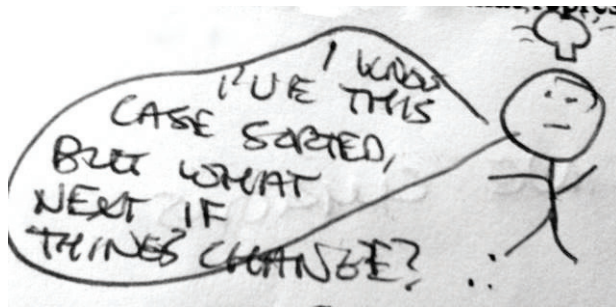
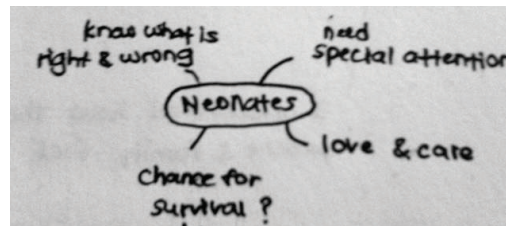
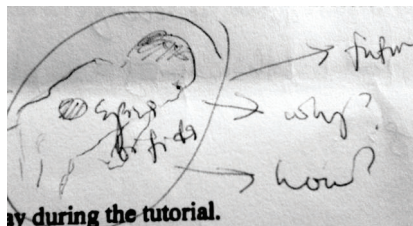


Figure 42

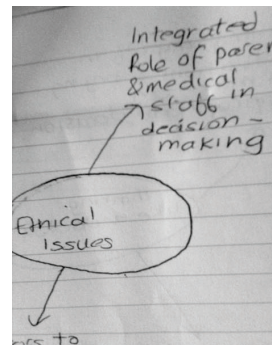
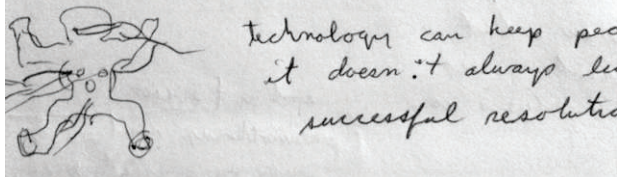
Now they are faced with babies who cannot speak for themselves and asking themselves fundamental question of beneficence (saving the baby's life) but at what cost (non-maleficence: pain and suffering). Should we operate on all babies with spina bifida (figures 43 - 44). What does the future hold for this baby? Why did it happen? How do I know what is right and what is wrong?



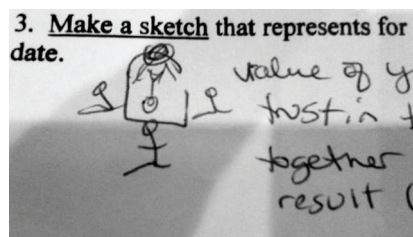
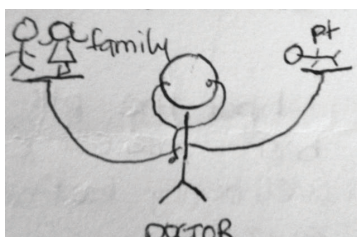
Figures 43 - 44

For other students, their thinking has progressed. They recognise the limitations of technology. They see the need to involve parents in decision making (Figures 45 - 48).

Make a sketch that represents for you one of the important ideas



Figures 45 - 46



Figures 47 - 48

Some students are beginning to see the real dilemmas of Medicine in creative, artistic terms: 'Life or Death: Incubator or Coffin' (Figure 49). They are making connections between dissimilar subjects, thinking in opposites. The physicist Niels Bohr believed that if you held opposites together, then you suspend your thought, and your mind moves to a new level.

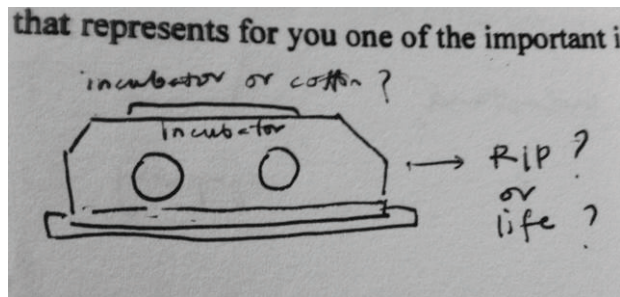
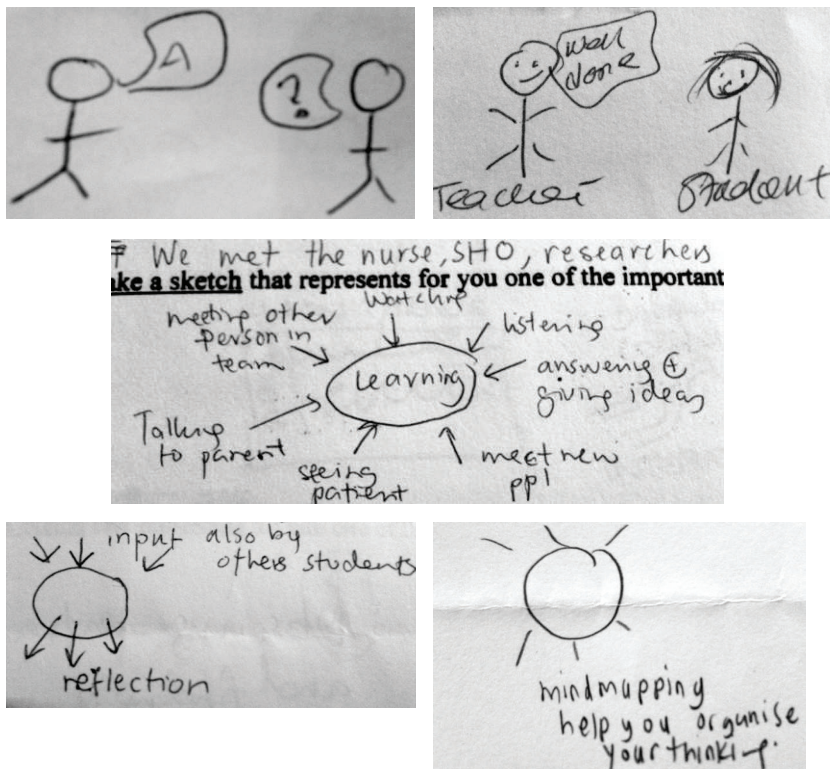


Figure 49

Student's learning: An interesting theme of the drawings was a reflection on the student's own learning. They seemed to appreciate Socratic style questioning, as long as it was supported by positive feedback. Integration, peer learning and reflection, were also referred to in the drawings (Figures 50 – 54).



Figures 50 – 54

C. The Mind-maps: How do you know when you are thinking like a doctor?

In addition to practice based themes (diagnostic and therapeutic skills) more than 90% of mind-maps contained references to humanistic/professional themes. A number of the latter themes and associated quotations are presented in the table below.

Theme	I know I am thinking like a doctor when:
Altruistic	I am helping people, I can help people I am willing to sacrifice my time caring for my patients I'm thinking of putting the patient's needs first I try to do the best for my patient. I want to do what's best for my patient
Beneficence: to do good	I ease my patient's anxiety I ease the patient either emotionally or physically I make a difference to someone's life
Compassion	I'm trying to understand how a person feels about their illness I have empathy and compassion for other people around me I look at a baby and know he's in distress & try do to something to fix it I am (morally) uncomfortable when making a decision whether to resuscitate (a tiny baby) or not I wonder what can be done to make a situation better I engage the patients as a person and not a set of ailments I become empathetic rather than just sympathetic I treat patients and families as human beings & not just disease problems The names of patients are as important to me as their treatments I treat patients instead of values I address the worries of my patients I try to feel what the parents are going through and respect the ways they are dealing with it I am thinking of what outcomes will be for the baby and how that affects the parents as well
Understanding Context	I look at the patient as a whole person in the context of their situation I consider and treat the whole family I try to stand back and look at the bigger picture (whole scene) I put each patient in the context of his or her individual circumstances I look at things in terms of their context (e.g. historically) I am analysing the situation in multiple layers (Bio-psycho-social), and thinking holistically I am trying to find the underlying causes of everything I observe the problem from many aspects and integrate it all together I really try to reserve judgement and immediate prejudices to allow me to appreciate the situation non-judgementally

**Integrity
Communication**

I don't lose sight of really what it's all about
I start to see a second side to a story
I am being professional about patient confidentiality
I can communicate well with people from all walks of life
I don't make immediate assumptions
I'm prepared to think out-loud
I listen, I understand

Professionalism

I ask parents for **their** concerns for their baby
I ask the patient to tell me about their experiences
I broach difficult subjects
I am mindful of the patient and their family's comfort
I am willing to admit I need help
I admit I have made a mistake and am willing to rectify that mistake
I look for areas in medicine that may benefit from research
I am curious, inquisitive
I am more accepting of responsibility
I treat everyone the same
I am learning to take care of myself as well (to prevent burnout)
I know my limitations
I contribute to the education of my peers
I am not afraid to ask questions
I feel I have done the right thing at the right time and be very efficient
I have interest in learning new things
I have been working 2 days (like the doctor we met this morning) and I still keep going

Inter-disciplinarity

I am taking into account other people's experiences and perspectives
I am not worried about wasting too much time with patients
I involve other health professionals in making decisions that will have an impact on a patient's life
I learn things from other professionals

**Cognition Integration
& Reflection**

I am putting thought into the effects of the environment on the baby
I don't just look, but I observe: I am observing and thinking
I am thinking in the language of a doctor
I don't panic when I don't know everything
I anticipate problems and try to prevent them
I'm trying to use my powers of deduction
I start thinking before I even talk to the patient
I can think scientifically as well as empathetically
I am giving the patient my full attention
I am thinking about nothing but the patient at hand
I am thinking with a broad mind (not too focused on something)
I can relate and link paediatrics with other specialties

Pragmatism	I use my knowledge to put the pieces together I reflect on what I have observed and learned I am using self-reflection to learn I don't cause major trouble & people say that what I am doing is right I graduate and become a doctor
Humour	I am not thinking of making money only I get a cough and I think it's lung cancer I see a freckle on my dad's face and think it's a squamous cell cancer I rue the amount of alcohol I had last night because I know the damage it does Friends tell me of their escapades and I have to bite my tongue in case I give out Health Warnings! Friends ask me medical questions and even if I don't fully know myself, I still bluff to make them feel better

DISCUSSION: CONDITIONS FOR DOING THE SCHOLARSHIP OF TEACHING: THE EDUCATIONAL CHALLENGE

The goal of this project was to give the students an overview of newborn medicine from different perspectives, to teach beyond the diagnostic and therapeutic core concepts, thus opening up emotional and ethical crises that occur within this subspecialty on a daily basis. Opportunities for integrative teaching do not always come easily. However, bedside education, the signature pedagogy of medicine, is ideally suited to foster intentional connections between scientific and abstract frameworks (Schulman, 2005), to expose students to practice-based challenges, and to demonstrate a humanistic approach to patient care.

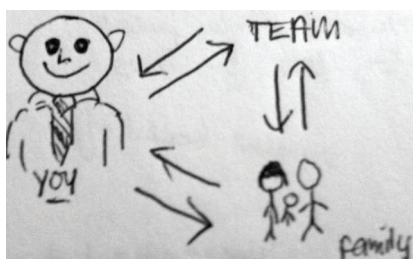
This three-dimensional evaluation process (text, image and mind-map) was a student evaluation of the teacher and the content and methodology of teaching. It was not an assessment of the students per se. However, if one plans teaching to advance Integrative Learning (IL), then, according to Miller (2006), the evaluations of that teaching can be used as a valid (and valued) assessment of student IL. Indeed, these multi-mode evaluations did give rise to useful information about the educational impact of the sessions on the students.

In their written evaluations the students made many excellent clinical observations in addition to grateful words of appreciation and admiration towards the parents and the interdisciplinary health professionals whom they had met. Written entries were thoughtful and considered. However, the information gained from the text had a limited role in eliciting student emotional reactions. By contrast, the drawings and mind-maps were particularly rewarding in identifying awareness of practice based themes and themes of a humanistic nature. They seemed to have enabled students to pictorially represent their impressions and feelings and to capture a global or holistic portrayal of their learning experience. In addition, they showed that, as a group, they were active self-aware learners and capable of higher order thinking. They showed respect for patient autonomy, attention to their psychological well-being and the importance of treating babies in the context of their family, social and physical environments. The evaluations also showed an understanding of the importance of warmth, compassion, good communication and listening skills.

Practice-based pictorial themes identified included interdisciplinary collaboration, clinical learning, and reflections on students' own learning. For many students this seems to have been a unique exposure to interprofessional collaboration in the workplace (Ryan, 2010). Recognising the importance of working interprofessionally may be a threshold concept for medical students (who are for the most part educated uni-professionally but will enter a multiprofessional workplace). Through contact with other professionals in patient care, professional tribalism, barriers and stereotypical views and misunderstandings may be set aside. Interprofessional exposure and interactions may lead to new ways of thinking, an appreciation of multiple-perspectives, respect for other disciplines' roles and contributions and the centrality of the patient's experience in the health service. Students showed they were able to link into other subject areas of medicine, to identify evidence of high-order concepts. They were also self-reflective about their clinical experiences, and they also showed awareness of how they learned and could learn better. As a result of such reflection, they were able to identify roles and concepts that demonstrated that they were beginning 'to think like a doctor'. This self-awareness and ability to reflect may be a result of increasing use of reflection portfolios in the earlier undergraduate curriculum (Kelly, 2007). The humanism demonstrated in the drawings and mindmaps here may represent the strengthening of the role of the Humanities in the UCC undergraduate medical curriculum. Huber and Hutchings (2008), said that *"integrative learning may require scaffolding that extends beyond individual courses"*.

According to Miller and Schmidt (1999) the habit of humanism comprises three essential tasks: (1) identifying the multiple perspectives in a clinical encounter; (2) reflecting on how these perspectives might converge or conflict; and (3) choosing to act altruistically with respect for patient's and other perspectives. This multifocal student evaluation showed that humanistic concepts and teaching could be introduced and learned integratively during bedside tutorials when reflective inquiry is applied to the experience. Most students showed an appreciation of perspective-taking, by recalling RPP (review of parents' perspectives) and interdisciplinary conversations as highlights of the session.

While the students were strong on the bio-psycho-ethical aspect of professionalism (individual doctor patient relationship and medicine as a moral endeavour), there was little or no mention in the evaluations of the sociological aspects of professionalism: accountability, power, and the profession's responsibility to society (Cruess and Cruess, 2008). Schon (1983) believed that much of the work of professionals is tacit, relating to the deeper and more complex aspects of practice, some of which practitioners are not consciously aware. These include issues of perceptions, values, assumptions, power and taboos that underlie medical practice. In a number of sessions I alluded to the traditional, powerful positions that doctors hold in society, individually and as part of the profession. However, awareness of power-gradients and the potential for misuse of power did not come through in any of the written evaluations or the mind-maps. This student drawing, however, does allude to professional power.



The doctor (pointedly labelled "you", presumably referring to the tutor/consultant), is confident, professionally attired, and interacts with the family and health-care team. Yet, he is curiously larger

(dominant) than the tiny family and the team. Without trying to read too much into a single illustration, it does suggest that students rarely verbalise, but are subliminally aware of the power of the medical consultant (the patient's doctor but also the student's teacher). Cogan (2002), who investigated University College Cork's international medical student's experiences by their drawings, found that senior doctors were often portrayed as larger than life figures in contrast to the tiny, humble student, implying real fears of unstated issues of powerlessness and vulnerability among these students.

Evaluation by images and mind-maps has not been widely reported in educational research. According to Besette (2008), nursing students' drawings as a mode of evaluation had considerable power to illuminate educational practice in the same way that childhood drawings allow children to communicate intense feelings. Besette's work suggests that features depicted in student drawings can be coded reliably. Drawings promote a different way of reflection: images tell us not only what happened but how people feel about what has happened. They appear to generate information that is not usually obtained from written comments.

How reliably are drawings analysed and how valid are the conclusions one draws from them? A limitation of this study was that the core themes came from my interpretation solely. Triangulation, with multi-observer interpretation and analysis, and an evaluation rubric could increase the power and validity of drawing interpretation and mind-map classification. Not all students were interested or comfortable with drawing or mindmaps as a form of teaching evaluation. It is possible that drawing might be more appealing to creative students. However, that in itself is a reason for seeking different forms of evaluation.

In order to begin to think like a doctor, emerging doctors have to pass through several Threshold Concepts (TC) that are, according to Meyer and Land, *transformative*, irreversible, integrative, non-intuitive, *troublesome* (far from common sense) and *bounded* (Meyer and Land, 2003). The narrative of Adam and Eve is a good metaphor to understand the features of a TC. Our first ancestors were expelled from the garden of Eden because they acquired new bounded knowledge. Because of this *troublesome knowledge*, they were transformed and integrated to the extent that they could not return through the portal of Eden even if they had wanted to (irreversible).

Both parents of critically-ill newborns and the students on their educational visit pass through the preliminal and liminal phases of a TC, although from different perspectives, with different objectives and levels of emotional intensity. The preliminal stage begins with awakening, as they enter this new strange environment and experience it through their visual, auditory, tactile and olfactory senses. With the parents and their babies, our goal as professionals is to modulate these sensations, to allow them to cope with their often-terrifying circumstances. With the students, my goal as tutor is to intensify and elevate their senses and awareness, even to the point of making them feel uncomfortable. Through questioning and feedback, they begin to see this medical arena as their future workplace, where they will face complex and difficult medical, social and ethical challenges, which they cannot address without multidisciplinary team support. They become aware of the parents', their professional colleagues and their own perspectives and fears.

As they tentatively approach the portal of medical practice, medical students are suddenly aware of what they do not know and realise that the answers to many of these essential

knowledge gaps are not in the books. They may progress to the liminal phase of the TC, where the battle between their often misleading and incorrect intuitive knowledge (common sense) and their old certainties ('There is an answer to everything. I just have to find it') opposes their new perceptions (non-intuitive knowledge and uncertainty). Should we be saving these babies lives at all cost? What gestation do we start resuscitating these babies? When do we stop? Who decides? It is too early, yet, to expect these students to enter the post-liminal phase where new understandings, new identities and even disillusionment co-exist. Nevertheless, we must get the students asking questions, and build their integrative learning capacity by offering them the skills to critically analyse complex situations. New knowledge and new understandings are being created, but troublesome or nettlesome knowledge may not be making sense. They may leave the tutorial unsettled, but perhaps excited, curious, and eager to pursue their journey. Crossing a TC is not a provable hypothesis. Whether this teaching session led to understanding can only be deduced.

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INTEGRATIVE LEARNING IN A LAW AND ECONOMICS MODULE

John Considine

FRAMING THE QUESTION

During the academic years 2006/7 and 2007/8 I was exposed to a variety of new and exciting ideas on teaching. These ideas came from the presenters, my classmates, and the reading material in a teacher training course delivered by *Ionad Bairre: The Centre for Teaching and Learning*, University College Cork (UCC). While the *Diploma in Teaching and Learning in Higher Education* presented challenges to some aspects of my teaching, and support for others, the biggest benefit was the introduction to new ideas and my exposure to a group of other interested individuals. The ideas and frameworks introduced there included: the multiple intelligences approach of Howard Gardiner; the Teaching for Understanding approach of David Perkins and Martha Stone Wiske (among others); the reflective approach of Donald Schon; the threshold concepts approach of Ray Land and Jan Meyer; and the integrative learning approach, of which the project from which this volume emerges is part, at UCC.

The various approaches tend to overlap and are far from being mutually exclusive; for example, reflective learning using written evidence such as reflective journals, and reflective learning using visual recordings, can be integrative where learners integrate material from other fields within their discipline, from other disciplines, and/or from their daily lives. It is this reflective approach to integrative learning that this project seeks to explore. Reflective learning is becoming a more popular approach in economics; for example, Brewer and Jozefowicz (2006) ask students to use economic principles to reflect on their monetary spending patterns in everyday life. The aim of my integrative learning project is to encourage students to reflect on how they, and their classmates, spend their precious resources of time and effort.

Learners in this reflective learning are asked to consider if their behaviour is 'economic'. In other words, they are asked to reflect on their behaviour and consider whether it is consistent with the creature at the centre of economic theory. This creature is known as economic man,¹ or *homo economicus*, and is defined as being self-interested and rational (where being rational means having consistent preferences). How would *homo economicus* behave as a learner? Primarily, he would only undertake actions up to the point where the benefits from the last unit of effort were equal to the cost of the opportunities forgone. For example, he would compare the benefits from an evening studying (or going to class) versus the costs of other activities that could take place during that evening (or fifty minutes). When undertaking this comparison, *homo economicus* would only consider himself; he would not factor into his calculations the impact of his absence on his classmates or his teacher. This type of behaviour is expected because *homo economicus* is self-interested. It is also claimed that *homo economicus* is rational: in an economic setting this means that his preferences are consistent. Therefore, in the absence of new information, *homo-economicus* would neither change his study plans on a whim nor would he regret his previous behaviour when it came to assessment time. He would have worked out the optimal use of his time and effort and stuck steadfastly to his plan. He would effectively behave like Mr Spock from the television series *Star Trek*.

THE CONTEXT: A MODULE IN LAW AND ECONOMICS

The behaviour students are asked to reflect upon is their behaviour in relation to the design and completion of, the coursework essay in a *Law and Economics of Competition* module. This module is delivered to final year Bachelor of Commerce students. The class size is usually between fifty and sixty students, and approximately half of these students major in economics (taking forty out of their

¹ *Homo economicus* is a fiction used universally as a teaching tool intended to exemplify an abstract theory; his gendering is incidental and functional, and should not be read in any way as a social or discriminatory comment.

annual sixty credits in this subject). The other students take the module as a minor, but many of these are students major instead in law.

The content of the module deals with the legality and efficiency of competition and cooperation between economic units. While the primary emphasis is on competition and cooperation between businesses, an examination of the competition and cooperation that occurs between individuals and political collectives (cities, nations and economic blocs) is also a feature. There are two unifying themes for the material covered: the first is the consistent and recurring tension between the appropriateness of competitive and cooperative behaviour. There are numerous examples from the business world, the political world, and from individual human interaction: why, for instance, are sports teams allowed to cooperate in agreeing the amount of their product they will bring to the market and yet if other firms engaged in this form of cooperation they would be prosecuted as cartels? Why does the United States of America agree double-taxation agreements with countries that compete with it on tax rates, and yet, treat other countries that compete with it on taxes as illegal tax-havens? Why do educators encourage individual students to cooperate in the learning process and yet base the majority of assessment competitive examinations? This first unifying theme is designed to help students think about the conditions under which competitive and cooperative behaviour is appropriate.

The second underlying theme is how the law can be used to bring private and social costs and benefits into line; for example, the 'polluter pays' principle can be applied to countries, firms and individuals. Effectively students are asked to consider how the discipline of economics can help use structure the law to get a better outcome for society. Of course, economics assumes that individuals behave like *homo economicus*. Therefore, the rules must be structured such that *homo economicus* will, in behaving in a self-interested fashion, produce an outcome that benefits society. This is why the law is structured to give those innovators a return for their efforts in the form of patents, copyright, and trademarks.

It seems obvious that the same economic analysis should be applied to the rules governing the learning environment. How should the 'laws' governing assessment be structure to ensure that rational, self-interested individuals contribute to the learning environment for all students? This question asks students to evaluate the structure of assessment from an economic perspective. This perspective is only appropriate where student behave like *homo economicus*. Therefore, students need to reflect on whether or not this is the case.

As a ten-credit module *Law and Economics of Competition* has 200 associated work hours including forty-eight lecture hours delivered at the rate of two hours per week. It is assessed by a three hour end-of-year examination worth 80%, and a coursework essay worth 20%. The end-of-year examination is comprised of six multi-part questions (each question has three parts, namely, parts a, b, and c) from which the students select to complete four.

The structure of the assessment for the 20% available for coursework has changed between 2003 and 2009. Three of these changes are of particular interest. All three changes were the result of student prompting. The first change increased the student choice with respect to the titles and timing of coursework essays from which they could select *one* essay to complete. The second change increased the student choice with respect to the level of collaboration the student could engage in by allowing students to complete their essays as either individuals or as part of self-selected groups. The third change increased the student choice by allowing the

student complete up to three essays where their best mark would contribute to the 20% available for the coursework essay.

RATIONALLY DEALING WITH DEPARTURES FROM RATIONALITY

The first change was the result of student queries about the deadline for the coursework essay. Students complained that most of their coursework (i.e. across all modules) was due during the latter half of the second term. They wanted teaching staff to stagger the submission deadlines. This prompted a class discussion on why individuals would want to constrain their choices. If all deadlines are at the end of the module then this would be optimal for rational individuals who could organise their study time. Or would they? Are students rational in the sense that they make consistent choices over time? The students knew from reflecting on their experience that time-preferences might be inconsistent and that the students wanted to constrain themselves. In effect, the students wanted to put in place some commitment mechanism that would help them achieve their long-term educational goals by providing a series of short-term goals that counteracted any tendency to procrastinate. In other words, the students of law and economics wanted to change the laws governing the coursework essay to improve their society. Specifically, they sought to 'rationally' deal with their departures from rationality in the future.

There were two practical problems with any change designed to improve student welfare. First, the range of deadline dates from all the other modules taken by students meant that it would be impossible to get agreement on an alternative date. Second, any change to the 'contract' with the students as it was presented in the Book of Modules required agreement by all the class to avoid assessment appeals later in the year. To solve these two problems a proposal for an alternative coursework assessment structure was put to the class. The alternative structure gave students three distinct essays titles that could be submitted at three distinct dates (after ten, fourteen and twenty weeks). Any student could anonymously veto this proposal. Would they? Was it rational to do so? It would not be rational to veto the proposal as the original coursework design was a subset of the new proposal (one essay on week twenty). In other words, there should be winners under the new proposal and no losers.

COOPERATIVE OR COMPETITIVE LEARNING

As detailed above, one of the underlying themes of the module is the appropriateness of competitive or cooperative behaviour. The criteria for evaluating the appropriateness of competitive versus cooperative behaviour are usually the welfare of society as a whole. For example, sports teams have to agree on regulations and on details such as the number of games or there would be no product for consumption. By contrast, other producers who form cartels to agree quantity limits are engaged in transfer of welfare from the consumer to the producer (there is usually a welfare loss to society over and above the welfare transferred).

To get the students to think about the appropriateness of competitive and cooperative behaviour it is instructive to illustrate the issues with the example of educational assessment. I asked students whether they preferred everyone to receive the class average grade or marks to be awarded based on individual performance on assessment. The vast majority of students opted for the latter. Their main argument is that educational effort and outcome will be less if students do not face the full costs and benefits of their efforts – the private costs and benefits are misaligned with the societal costs and benefits. Some students said that while they believed that the idea of cooperative learning and assessment were good in principle, their experience of group work in the Bachelor of Commerce was the worst experience in the programme. Others noted that they found cooperative learning useful when they engaged in study groups, but felt unsure about the benefits of group assessment.

In an effort to capture some of the benefits to group work the second change in the assessment of the coursework allowed students to complete their essays either individually or as members of a self-selected group. This change also allowed students to reflect on the economic logic of group formation. It also allows students to get a closer understanding for the literature on group formation/cooperation covered in the module. In particular, students gain an insight into the work of Olson (1965) where he argues that self-selected groups will tend to be small because of the free-rider problem. Olson argues that the costs of “encouraging” a colleague to do work are only worth it when the benefits from them doing that work are greater than the costs (1965). As the number of members in a group gets larger the benefits of the shared workload will decrease below the costs. Hence, groups will tend to be small.

In 2007/8 I decided to offer students the option of ‘sharing’ their essays anonymously on the Blackboard module support website. If they decided they wanted to share their essay with the class then they could do this: (i) before the essay deadline or, (ii) before the examination to aid the revision process for other.

ECONOMISING ON EFFORT

During class in 2006/7, in a discussion of the alternative coursework of three essay titles with three essay dates, a group of students asked if they could submit all three essays and keep the highest grade. On hearing this suggestion the rest of the class believed it was a good idea. I agreed, although I expected that few would avail of this opportunity based on the economics of the situation. In economics students are taught that activity takes place up to the point where the marginal benefit is equal to the marginal cost. Once a student has submitted one essay then the benefits that they get, in terms of marks, from submitting a second essay is only the increase in marks; for example, if a student earns 60% in the first essay and 75% in the second, then the reward for the second essay is the extra 15%. Of course, there is a risk of attaining a mark of less than 60%, in which case one might argue that there was no benefit to doing the extra essay but that there was an extra cost.

GATHERING THE EVIDENCE

The resulting student behaviour from the three changes outlined in the previous section is outline in the tables below. This information reveals if the students behaved in an economic manner, that is, in a manner consistent with how *homo economicus* would behave. It does not show if they learned from any reflection on their behaviour, although a small number of student essays on the economic logic of the coursework structure suggest that at least some gained from the experience.

RATIONALLY DEALING WITH DEPARTURES FROM RATIONALITY

Students sought to deal rationally with their potential departures from rationality due to time-inconsistent preferences by seeking to be constrained by staggered deadlines. Did they also behave rationally by not vetoing the new proposal? The answer is positive. Table 1 shows that in the six years that they were offered the veto no-one availed of it.

Table 1: Usage of Veto Power on Course Proposal 2003/4 to 2008/9

	2003/4	2004/5	2005/6	2006/7	2007/8	2008/9
Use/ Not Used	Not Used	Not Used	Not Used	Not Used	Not Used	Not Used

Table 2 lists the number of essays submitted for each deadline. There seems to be a consistent spread of essays.

Table 2: Essay Completions for EC4208 from 2005/6 to 2006/7

Essay	2005/6	2006/7	2007/8	2008/9
1	6	22	32	30
2	10	19	20	5
3	12	23	17	25

There is an interesting postscript to the use of the veto. In the academic year 2008-9 a student proposed that the rules governing late submission of essays be changed. I explained that the proposal would need to be put to the class on the same basis as the original coursework proposal for change, i.e. allowing student to have a veto. The proposal was vetoed. What is interesting about this veto is that it could be seen as strategic. The proposal was made after the first essay was completed. Someone who completed the first essay vetoed the proposal!

EVIDENCE ON COOPERATIVE OR COMPETITIVE LEARNING

In 2006/7 students were offered the choice of forming self-selected group to complete their essays. There was no limit on the size of the group. Table 3 presents the nature of group formation. For example, in 2008/9 a total of thirty-seven individuals did their essays on their own, there were seven groups of two individuals, three groups of three individuals, and no larger groups. The outcome is in line with economic theory. The issue is should students be 'nudged' towards cooperation by changing the laws / rules.

Table 3: Group Essays for EC4208 from 2006/7 to 2008/9

	2006/7	2007/8	2008/9
1 Person	26 (=26x1)	30 (=30x1)	37 (=37x1)
2 Persons	14 (=7x2)	24 (=12x2)	14 (=7x2)
3 Persons	6 (=2x3)	9 (=3x3)	9 (=3x3)
4 Persons	8 (=2x4)	0	0

Students were also allowed to cooperate by posting their essays on the Blackboard Virtual Learning Environment. They were allowed to post their essay before the deadline for completion of that essay and/or they could post their essay before the end-of-year examination (there is usually a question part related to each of the three essays). The evidence in Table 4 shows that students decided to compete rather than cooperate. However, it is possible that the choice architects could 'nudge' people towards cooperation in a fashion similar to that suggested by Thaler and Sunstein (2008) for organ donation. The default rule could be changed to that saying essays will be posted unless a student opts out of this system.

Table 4: Number of Persons Who Posted Essays on Blackboard for EC4208 2007/8 and 2008/9

	2007/8	2008/9
Before Coursework Deadline	0	0
After Coursework Deadline and Before Examination	4	2

ECONOMISING ON EFFORT

Since 2007/8 students have been allowed to submit more than one essay and get the best mark from the essays they have submitted. This law / rule change was suggested by the students. Table 5 shows that very few students complete more than one essay. This is consistent with economic theory as the marginal increase in mark is not likely to be worth the effort. That said, greater choice probably imposes little cost on either the student or the grader.

Table 5: Number of Essays Individuals Submitted for EC4208 2007/8 to 2008/9

No. of Essays	No. of People	No. of People
1	55	55
2	4	3
3	0	1

LESSONS LEARNED

These small experiments in the structure of coursework suggest that student behave in a manner that is fairly consistent with the way the individual is modelled in economics. Developments in education, including in economic education, suggest that greater emphasis should be placed on reflective practice by the student. Thus far in economics the subject of reflective learning tends to be on the students' financial behaviour outside of class. This project suggests that a more integrative approach might be to get the students to reflect on their behaviour as students.

A small number of students in the module completed an essay on the law and economics of the coursework structure. Their essays display very good levels of understanding. Unfortunately, only one in twelve students completed this essay: they were the five students who completed the second essay in 2008/9, as shown in Table 2. The next steps are to determine if (a) completing the essays aided their understanding and, (b) establish why more individuals did not complete this particular essay in reflective learning.

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MAKING CONNECTIONS FOR MINDFUL ENQUIRY: USING REFLECTIVE JOURNALS TO SCAFFOLD AN AUTOBIOGRAPHICAL APPROACH TO LEARNING IN ECONOMICS¹

Daniel Blackshields

INTRODUCTION

Frank has argued for the importance of the transfer of learning of economics taught in the classroom to students' lives: "*if you can't actually take an idea outside the classroom and use it, you don't really get it. But once you use it on your own, it's yours forever*" (2007, p. 11). This chapter reports on the background, design and enactment of part of an assessment strategy designed as a scaffold to encourage mindful enquiry by students through an autobiographical understanding of their problem-solving processes with economics. Integrative learning is at the heart of this assessment strategy as students are encouraged and enabled to draw together their past, present and future experiences and connect their identity with their learning.

FRAMING THE QUESTION

In *La Condition Humaine*, René Magritte explored the relationship between reality and representation. Foreshadowing constructivist thought, he said: "*[w]e see [the world] outside ourselves, yet all we have of it is a representation inside ourselves*" (cited in Gablik, 2003, p. 87).



Figure i: *La Condition Humaine* (*The Human Condition*)

by René Magritte (1933). Source: <http://research.uvsc.edu/albrecht-crane/3400/human%20condition.jpg>

This painting and Magritte's reflections have had a transformative impact on my teaching philosophy. My contemplation of them drew me gradually from a didactic approach situating learning in authority to one that recognises deep learning as situated in the experience of the learner. I came to appreciate that teachers must be aware of and develop pedagogical strategies that enable learners to "*becom[e] critically aware of [their]... own composing of reality*" (Parks, 2000, p.6, cited in Baxter Magolda, 2004, p. xviii). I believe that this transformation in my own teaching philosophy

reflects Baxter Magolda's assertion that college should be a time of transformative learning for students from an "*adolescent dependence on authorities ...gradually [being] replaced with adult responsibility as a citizen*" (Baxter Magolda, 2004, xvii).

The constructive-developmental theorist Robert Kegan calls the composition of one's own world - *Self-authorship* (1994). He defines self-authorship as "*internally co-ordinating beliefs, values and interpersonal loyalties*" (Baxter Magolda 2004, p. xviii). Baxter Magolda and King argue that self-authorship should be a central goal of higher education, enabling "*effective citizenship*" (Baxter Magolda and King 2004, p. 6).² Self-authorship requires a capacity for intentional learning on the part of the learner, wherein learners are more self-aware and purposeful about their learning (Huber and Hutchings, 2004, p. 8). Intentional learning with relation to problem-solving requires the development of learners' domain-specific and metacognitive knowledge. Such learning, in turn, is integrative in nature as learners must make meaningful connections between seemingly disparate information; drawing on a variety of expertise and experience to derive considered judgments (Baxter Magolda, 2004, p. 5). Arcario elegantly summarized this as "*pull[ing] past, present and future into a seamless whole...*" (2005, p. 16).

¹ The research derives partially from work completed for my thesis in part fulfilment of my Masters in Teaching and Learning in Higher Education. I would like to thank the participants in EC2107 in 2007/2008 without their support this research and the development of my own teaching practice would not be possible

² Effective citizenship is defined as coherent and ethical action for one's own good and the good of society. In turn this requires cognitive maturity where citizens have the ability to interpret phenomena in their specific contexts, evaluate actions and make choices accordingly. Such ability requires an integrated identity and internal belief system guiding one's choices and this requires a capacity for mutuality and mature interdependence (Baxter Magolda and King, 2004).

Teachers have a crucial role in fostering intentional learning through pedagogical design. This is what Hutchings calls building habits and habitats of integrative learning (2005). The Teaching for Understanding Framework (TfU) is a tool that enables teachers design pedagogies to help learners to develop “*deep and flexible practice*” (McCarthy, 2008, p. 102; see Blythe *et al* [1998] for more on TfU). A key presupposition made in TfU is that educators want learners to *own* knowledge so that they can *use* it (Hetland, 1997, p. 19). This dovetails with Van Sickle’s (1992) and Frank’s (2007) emphasis on students being able to use their economics in their public and private lives. This performance perspective is constructivist and intentional in nature. A key component of TfU is ongoing assessment which enables learners to check their understanding (Hetland, 1997, p. 24). A key form of such assessment is reflection by the learner on their learning with the aim of instilling automaticity in the assessment of a learner’s own performance (Hetland, 1997, p. 77).

Reflection can be used to scaffold intentional learning Moon (1999a, 1999b, 2007). It can engender an autobiographical approach to learning wherein learners individualise learning, connecting their own learning experiences. Brain-based learning researchers have identified such practice as crucial for establishing the sense and meaning of learning and thus its retention by learners (Jensen, 2000; Sousa, 2006). Associative learning is thus fundamental to the development of the brain’s learning capacity as it “*expands the brain’s ability to retain information. New connections are formed between neurons and new insights are encoded*” (Sousa, 2006, p. 145). Such associations are formed by means of transfer learning.



Figure ii: *Reproduction Interdite* (Not to be Reproduced) by René Magritte (1937).

Source: http://lh6.ggpht.com/_OTihsUbQdqc/ShhU99bikKI/AAAAAAAAANwI/fQBpLSHBzIg/magrittenottobereproduced.jpg

However, Blanchette and Dunbar have found that students find associative learning supporting full transfer quite difficult. If so it is thus important for educators to bridge students’ learning from one situation to another (2002). I have taken Magritte’s work *Reproduction Interdite* (see Figure ii) as a visual articulation of the question: do we ever see/know ourselves? I believe that it attests to the difficulties of the reflective act and as a consequence the necessity for the teacher to develop scaffolds to foster and enable the reflective process of students. Writing is one such scaffold. Writing about one’s reflections allows one to capture their experiences, thoughts,

ideas and feelings. Writing may allow learners to extract meaning from experiences (Brewer and Jozefowicz, 2006). The learner thus individualises learning, making their own connections between their learning experiences.

One form of reflective writing is the reflective journal defined as a “*short, discontinuous personal document which represents the excerpting from an individual’s life of a special class of events*” (Hettich, 1976, p. 60). The learners’ journals thus become a reflective inventory of their learning representing learner ownership over their learning experiences (Brewer and Jozefowicz, 2006). An assessment strategy that encourages and facilitates learners to reflect

upon their learning experiences may thus advance a pedagogy that supports self-authorship on the part of the learner.

In this research I wanted to explore what students' reflective journals could tell me about incidents of intentional learning they experienced and the reported impact of such incidents on their learning practice.

THE CONTEXT

This research centres on an undergraduate economics course entitled: *EC2107: Reasoning and Persuasion in Economics* in 2007/2008. The throughline of this course was to teach students to *reason effectively* with economics in their public and private *lives*. The course was integrative in nature wherein students explored what it is to reason critically and creatively and what is it to communicate such reasoning to a variety of non-academic audiences. These general skills understanding were then applied to their economics problem-solving skills.

EC2107 is a ten-credit course³ offered in the second year of a three year Bachelor of Arts (BA), BA (Drama and Theatre Studies (D&TS), BA (Music) (MUS) programme and of a four-year BA Language and Cultural Studies (LCS), BA (European Studies) (ES) programmes. To be eligible for EC2107 students must have successfully participated in at least a one year introductory course in economics. In 2007/2008 seventy-seven students participated in EC2107. Seventy-three of these were Arts students (including one LCS student). 61% of participants were male and 39% female. The largest cohort of students were Joint Honours students (43%; including LCS) followed by major and single honours students (26%). Table i gives a breakdown of the students who participated in EC2107 in 2007/2008.

Type of Student	Single Honours 50 credits	Major Honours 40 credits	Joint Honours 30 credits	Visiting Students	LCS Spanish 30 credits	Total
Male	17	10	18	2	1	47
Female	3	10	14	2	0	30
Total	20	20	32	4	1	77

Table i: Breakdown of students who participated in EC2107 in 2007/2008.

The assessment of the course required students to develop a critical and creative thinking portfolio wherein they displayed an appreciation of how, when and why phenomena is interpreted using economics. Participating students were asked to develop their reflective journal at certain critical junctures throughout the course to scaffold students them to engage in autobiographical learning by enabling them to develop their own narratives on their problem-solving expertise and experience with economics, deepen their learning and hopefully lead to transformative learning experiences.

GATHERING THE EVIDENCE

This research considers three reflective journal entries which the students completed as part of their assessment for EC2107. Each journal entry was to be no less than two and no more than four A4 pages. The reflective journal was marked out of a maximum of 20%.⁴ Reflective prompts and feedback

³

Ten credits equals forty-eight contact hours per year, and 2 x 1 hour sessions per week).

⁴

The issue of marking the reflective work of students is a contested one. There is a concern that students may attempt to write what they believe the teacher wishes to hear. The decision was made to award marks to ensure that students engaged in the reflective process. When designing assessment strategies it is useful to bear in mind the developmental process of adolescents (and those at the cusp of leaving adolescence. Neuroscience has shown that the nucleus accumbens (that part of the brain that processes rewards) is more active than the prefrontal cortex (that part of the brain associated with rational thinking). Broadly, the emotional brain is in full operation, but not necessarily the rational part of their brains. Therefore, depending on the maturity of the prefrontal cortex of students, they may be blind to the long term benefits of activities such as reflection. However, they will be far better attuned to immediate rewards such as grades. In a sense, giving grades to a student's reflective writing may be an appropriate way of incentivising them given their stage neurological development. As well as the incentivised reflective journals, the author developed a reflective blog which all students in EC2107 could contribute and share their own reflections anonymously during the academic year. There were no entries (bar my own) to this blog in the year. For more on decision-making and the brain see Lehrer (2009).

were used to scaffold students' reflective writing. Journal entries were assessed through a marking rubric that I designed in terms of the levels of reflective writing (Hatton and Smith, 1995) and the principles of integrative learning (Huber and Hutchings 2004; Hutchings, 2005) (see Appendix 1). All three reflective journals focused on the students' reflections-on-action (Schön 1983).

Self-Reflective Journal One: On Being a Critical Thinker focused on students' reflections on their performance in the first assignment. The aim of the assignment was to get students considering the form and content of arguments as presented to them in magazines, newspapers, books, television etc. Students were asked to select a piece of writing with an economic/business content and to consider the use of metaphors, images and language and their usage in either creating clarity or confusion with regards to the understanding of the argument. They were asked to consider the structure of the argument and its validity. They role-played as editors of a magazine giving a rationale, following their analysis, as to whether they would publish, publish with corrections or reject for publication their chosen piece.

In the accompanying reflective journal students were asked to specifically reflect on their problem-solving skills in solving the problem of the assignment. Their main prompt was:

When considering these self-reflective questions, think of your work in terms of your assignment. The aim of this specific reflective exercise is to get you to consider how you approached the assignment on critical thinking as a critical thinker and what you have learned about yourself as a critical thinker coming from this assignment. This reflection aims to make you aware of the importance of metacognition in your approach to problem-solving.

The rationales for the specific reflective prompts used were as follows:

1. *Describe your process of addressing the problem set for you in assignment one(not your ideal image, but what you actually did).*
2. *Based on the above, how strong do you think your process for addressing the assignment was? Make sure that you can justify your assertion to yourself with evidence.*

The aim of question one was to get students to reflect upon, explicitly identify, and set out what they *did* to solve the problem of the assignment. Question two asked them to reflect on the processes that they identified and to report on what they felt worked and did not work in terms of solving the problem of the assignment.

3. *In light of your work on the assignment, in terms of being a critical thinker what do you think are your current strong points? (The aim here is to get to you to reflect on those elements of being a critical thinker that you can identify, have confidence in and ensure that you maintain and develop them). Make sure you provide evidence.*
4. *In terms of being a critical thinker what do you think are your weak points? (The aim here is to get to you to reflect on those elements of being a critical thinker that you can acknowledge might need development. This in turn will give you something concrete to aim for in terms of planning for such improvement). Make sure that you provide evidence.*

These two questions focused on students' self-assessment of their critical thinking skills. I wanted them to reflect upon their submitted assignment in light of the work that we engaged

in in class and the work they did in solving the problem of the assessment. From this I wanted them to develop a self-evaluation of their own strengths and weaknesses as critical reasoners. This allowed them to assess their own development throughout the year by keeping a record of their own progress.

5. *In light of your reflection, in terms of your approach to your assignment and your self-assessed critical thinking skills coming from the assignment: What would you do differently if you had to complete this assignment again and why would you do this differently? What will you do to develop your strong points and work on your weak points and why do you think that this strategy will benefit you.*

The aim of this question was to get students to reflect on their general and specific problem-solving skills as explored in their assignment and to get them to think about the lessons they learned by engaging in this work, for example, their metacognitive competences.⁵ This was designed as a form of *self-assessment* for students in terms of their own abilities and set up an *internal contract* to work on what they identified as aspects of their metacognitive knowledge that they would like to develop. This, I hoped, gave students a sense of *ownership* over the development of their own learning.

Self-Reflective Journal Two: On Being a Scientific Thinker focused on students' reflections on the second assignment. In this assignment students role-played as Sherlock Holmes (an expert problem-solver).⁶ They had to develop a memorandum on the ill-defined problem of the 'Crisis in the Housing Market'.⁷ They were to use the key qualities of the expert problem-solver, as discussed in class and any concepts, theories, frameworks in economics that they felt appropriate to solve the crisis.

As with journal one, in journal two students were specifically asked to focus on their processes of solving the problem posed by the assignment:

1. *What do you think is the most important part of the scientific problem-solving process? Why?*

This question asked them to identify what they felt was the key aspect(s) of the problem-solving process for them. It asked them to reflect upon their problem-solving process and their reaction to it. It asked them to identify what they were assessing in class as important and identify why this was for them.

2. *Do you recognise any aspects of the scientific problem-solving process in your own problem-solving (academic or non-academic)?*

This question explicitly focused on the *transfer of learning*. The aim was for students to focus on their perceived relevance of what they were doing in class for them outside of the economics classroom environment.

3. *In light of the idea of thinking about your thinking, what have you learned about your own problem-solving process from our work in the Sherlock Holmes workshop and assignment in terms of the way that you might now tackle the Robin Hood Business consultancy workshop that we explored before Christmas.*

This question specifically focused on their *memory organisation* and *facilitation* and *metacognitive skills*. It asked them to reflect on the *introductory performance* of the course⁸ in light of the *guided* and *culminating performances*. It required students to develop their metacognitive awareness. It provided them with an opportunity to examine how their learning was transforming longitudinally and whether and to what extent they 'saw' the various aspects of the course as interconnected.

5 For more on the importance of metacognition for deep learning see (Flavell, 1971; Chi et al, 1989; Van Sickle, 1992; Chi et al, 1994; Nickerson, 1994; Davidson and Sternberg, 1998; Otero, 1998 and Van Lehn, 1998).

6 See Didierjean and Gobet, 2008; Blackshields, 2009.

7 The author's own ill-defined problem story which sees Holmes role playing as an amateur economist

8 Please refer to the author for more information on this introductory performance.

4. *In terms of your development as an expert problem-solver in Economics, what do you think you are most likely to take with you from this workshop and assignment to your work in Economics? Why do you think this?*

This question focused on students identifying what for them were the key aspects of the work that we were doing in class. It enabled them to highlight what for them were the important lessons that they were learning. It helped them to identify where learner motivation and interest changes and why this might be for them.⁹

Self-Reflective Journal Three: On Being a Problem-solver in Economics focused on the students' overall reflections on their learning experiences in EC2107. The key reflective prompt stated:

This is the last official reflective journal of the academic year. I would like you to consider the year that you have just participated in - in terms of your preconceptions, perceptions, ideas and opinions about being an expert thinker in Economics process. Be honest with yourself in your exploration as not only will this help you but it will help me to develop and deliver this course in the years ahead – you are the experts.

The following were the rationales for the specific prompts used:

1. *You have completed an academic year in a module entitled: Reasoning and Persuasion in Economics. In your opinion what have been the key aspects of learning to reason in Economics (Van Sickle's types of knowledge [1992] that you will bring with you from this module and why?*

Here I wanted students to identify what *they* perceived was important about the skills explored in EC2107. I wanted them to try to reflect on their key general and specific skills as they saw it. This question also tried to capture extra-cognitive issues such as disposition, interest and motivation of the students.

2. *In terms of your development as an expert thinker in economics what do you think was the most successful aspect of the course for you and why do you think this? Please give evidence.*
3. *In terms of your development as an expert thinker what do you think was the least successful aspect of the course for you and why do you think this? Please give evidence.*

These questions asked students reflect where they had developed strengths from the course and where they felt that the course had not developed the skills identified in the learning outcomes. It was hoped to capture the *enablers* and *restrictors to learning* in the class from the perspective of the student body.

4. *Now that you have the experience that you have do you think that students of economics should be exposed to this type of module and why to you think as you do?*

This question specifically attempted to address extra-cognitive variables. I wanted students to identify to what extent they saw the merits in participating in EC2107.

5. *If you were to deliver a course on expert thinking in economics, given your experiences in this course, what one change would you make and why would you make this change?*

Related to question four, this asked students to focus on the enactment of the course and to specifically identify what they would do differently were they in charge of the course. This again aimed to get them to focus on how their specific and general problem-solving skills were

⁹ See Gardner (1990) for more on the importance of situational factors such as self-perception of ability and motivation on problem-solving ability.

developed and to identify for them, what they felt were obstacles to their learning. It further asked them to suggest alternative processes and to explain why for them this would be appropriate.¹⁰

EMERGENT FINDINGS AND BROADER SIGNIFICANCE



Figure iii: *Attempting the Impossible* by René Magritte (1928).

Source: <http://www.independent.co.uk/arts-entertainment/art/great-works/magritte-ren-attempt-at-the-impossible-1928-919105.html?action=Popup&gallery=no>

In 1928, Magritte composed *Attempting the Impossible*. Juxtaposing this with *The Human Condition* and *Not to be Reproduced*, this image might be employed as a metaphor for developing reflective practice and the journey to self-authorship. If, as the constructivists assert, we are, in a sense, artists developing our own learning, then perhaps we are like the artist's model her form emergent from his imagination, the twist being that we are both artist and model, forming our own identity and learning evolving through time. From the incidents of intentional learning in the students' journals, I tentatively suggest that many of the students are on this journey to self-authorship. There appeared to be a growing awareness by students of the impact of their own experiences on their own learning. As with *Attempting the Impossible*, this transformation is emerging, not yet complete. A number of key themes of intentional learning emerge from the journals.¹⁰

Some students reported a growing confidence in asserting their own values and sense of identity distinct from that of peers and authorities, thus a developing control of their learning and a willingness to trust themselves with regards to their knowledge claims:

"I feel the strong points of my personality ...have helped me to have a liberal outlook on life. If someone is right I would gladly admit it but question why I thought otherwise.'...'this gives me the confidence to stand up for my own opinions but always the confidence to be able to take other people's ideas on board. These ideas help to enhance my opinions and also to give me a balanced outlook on an issue" (RJ1FBAS9, my emphasis).

"I believe that while I could develop my critical thinking skills further, for now I am on the right road. I have learnt that my opinion is as important and often as valid as anybody else. I have learnt that just because someone writes for a newspaper or a magazine does not make them experts on every topic and they should still be questioned. This goes for everything in life, not just newspaper articles... Ultimately I believe that my strongest point in terms of being a critical thinker is the confidence I have developed in myself to trust my own interpretations and opinions and recognise flaws and bias in the arguments of others" (RJ1FBAM10, my emphasis).

"...I feel I have more control, in the things I do or say or think. I seldom, yet, still occasionally get the urge to set my mind, maintaining unchangeable thoughts and feelings. This has improved greatly. I am now able to unlock these thought processes which thinking back may have been blurred and thus jeopardised my decision making at times. Although despite that, I still trust my instincts and have my own, independent point of view which I have built up and improved over the years and will continue to do so" (RJ1FBAJ10, my emphasis).

¹⁰

For more incidents of intentional learning see appendix 2. All reflections have been rendered anonymous. A code is used. For instance RJ1FBAM3 means that the reflection was found in Reflective Journal One written by a female BA (Major) student. Three signifies a number that I placed on this female student for identification purposes.

There was a sense of ownership over their problem-solving performances with economics which may be seen reflective of the confidence that a pedagogy designed to foster and enable students to develop their own narratives with domain-specific knowledge can instil.

*"Understanding how problem solving is completed allows me to not only engage in more of it but also to **have more confidence in my ability** to follow through with it. This in turn allows me to tackle both mundane and economic problems with a greater sense of ability, which will help me in other economic modules in the future and in non-academic problems I may be faced with" (RJ3FBAS3, **my emphasis**).*

*"... this course required me to think outside the box, and to **use my own mind, instead of the words fed to me**, trying to solve a problem" (RJ3MBAM1, **my emphasis**).*

Some students might be said to be at the crossroads on their journey to self-authorship as they seem to recognise the fallibility and contextual nature of the knowledge of others and a greater willingness to tackle the knowledge claims of others but not necessarily recognise the fallibility of their own knowledge claims:

*"...I often tend to believe that just because someone might be better qualified than me in a certain area then they must be right. For example if I read something that I believe not to be true, I tend not to question it with the belief that, the author must know more than me. The same is true concerning lecturers, should a lecturer say something in class that I don't agree with, again I don't question it, even though he/she may be wrong..... **I will no longer take the opinion of someone better qualified as myself at face value** as it is possible that they could too be wrong and **ask more questions**" (RJ1MBAJ9 **my emphasis**).*

However, some students recognised a more maturing relationship with the knowledge claims of others and how they might develop themselves through engagement with such claims with recognition of the potential fallibility of their own knowledge claims:

*"...this assignment has highlighted some weaknesses in my thinking skills. It has certainly made **me think deeply about my own beliefs** and how I accumulate them. For example I have never voted for Fianna Fail and if someone asks, I never will!!! Why? Well, twenty-five years of listening to **my family** being opposed to their reign has obviously **had a real influence on my thoughts** about the party. But I think myself as an independent spirit and would like to think that I don't vote for them because I am well informed of their policies and don't agree with their platform. Critical thinking however, would suggest that I should identify their arguments, evaluate them, weight up the opposition and draw valid conclusions from them, then deciding whether to vote their way. **Do I do this? No. I shout from the rooftops in opposition to what they stand for but have never really sat and critically thought about their arguments.** I always thought that I did....In [it] **shows that it is very hard to change ones mindset** about their political affiliations, **most never deviate at all from whatever family alliance** they were born into" (RJ1FBAJ9 **my emphasis**).*

"I have always thought of critical thinking as meaning that one is able to look at an argument, pull it apart, decipher its messages, whether good or bad and make unbiased conclusions about what is being said. Having researched the concept a little closer I can now see that there is more to being a critical thinker than just being able to understand and accept another person's views or beliefs.

Being a critical thinker is about looking inside oneself as well and analysing the way I myself think about things” (RJ1FBAJ9 my emphasis).

Some students displayed an evolving awareness and acceptance of the constructivist nature of knowledge and recognition of multiple perspectives on problems and issues:

“It is impossible to look at an argument as a blank canvas. When it comes to an argument, the way in which we are persuaded comes down to our background, our morals, our beliefs and our religion...often I would find it extremely difficult to accept the view points of others when I feel strongly about a subject. I do think there is room for improvement, when it comes to me being more open to others, and also to allow myself to engage differently with others who disagree with me or have conflicting opinions to my own” (RJ1FBAJ1 my emphasis).

“I now understand that people approach problems from different perspectives from the outset and while I might not understand their approach immediately, upon further investigation and by trying to view the problem differently I could come to understand their answers over time” (RJ1MBAS8 my emphasis).

Some students represented the beginnings of the attempt to explore how experiences outside the economics classroom have an impact on their personal processes for adopting knowledge claims and developing future knowledge claims, thus reflective of both *transfer for learning* and *transfer of learning* (Sousa, 2000):

“While it has to be said I am relatively inexperienced on my journey of being a critical thinker, I do believe that I have come a long way since the start of this course and do believe that I can achieve much greater understanding of the skills used in becoming a successful critical thinker. One of my greatest achievements to date has been the improvement in my ability to decipher different types of texts. I used this skill in assignment 1 and since then I believe I have improved upon these skills even more. I read Dan Brown’s book the Da Vinci [Code] when it was first published and remember thinking that it was a very clever and enjoyable book. On re-reading the same book I found that I was using my critical thinking skills when reading it. I noticed more then before the way he cleverly covers pieces of fiction with fact so as to make the whole book more plausible. This is a clear example of how my critical thinking has improved’...‘I am also much better at finding faults and criticisms in people’s work. This has helped me greatly in my other subject history....this is just one example of how critical thinking can be used outside the scope of economics” (RJ1MBAJ10 my emphasis).

“I am also studying psychology and this too gives many opportunities to develop analytical and critical skills. Whilst the subject matter is different where in economics facts and figures serve as a framework for thinking in psychology one is presented with scenarios and behaviours. I believe there is great similarity in how one approaches the process of gaining understanding and insight, I am beginning to see a pattern and framework for thinking....the application of the techniques learned in both economics and psychology will enable me to be a good critical thinker” (RJ1FBAM6 my emphasis).

“...I found being interested in economics and music and having witnessed first hand the increase in concert prices over the past years a huge advantage in dealing with the article. My interests in economics helped in analysing these aspects of the article and being able to pinpoint areas Mr. Sabbagh failed to address such as the theory of supply and demand. Surprisingly I found my interest in music even more helpful as I was able to analyse the article as a sceptic of ticket touting from a fan of

music's point of view, but understood their existence from an economist's perspective" (RJ1MBAS8 my emphasis).

*"Not only does it help with **other modules within economics** but it has developed me as **a thinker as a whole**. It has taught me things that I can use outside college in everyday life, especially regarding problem-solving" (RJ2FBAJ6, my emphasis).*

In some cases, students' reflections on their performances seem to prompt the urge to accept responsibility for choosing their beliefs and crafting their identities:

*"the more I use these skills the better I become at applying them all the time. **My goal is to make critical thinking not just a skill which I possess, but a habit that I include in my every day routine**. I would also try to spread my critical thinking out **to other aspects of my life** etc such as my summer job in the tourist office and this **will help me** in my future professions as well" (RJ1MBAJ10 my emphasis).*

*"....I don't think my process for addressing the argument was that good at all. Yeah I did try to follow the guidelines and answer all the questions fully but was that really enough? **Was I using critical thinking skills? Or was I just regurgitating what I heard in class?** I didn't leave any room for freedom in my answers. I was too rigid with how I dealt with the problems....next assignment **I will rely on my own initiative** rather than the guidelines. **I won't be afraid to put down what I'm really feeling and basically give it a go...**" (RJMBAJ16 my emphasis).*

*"I noticed in the last number of weeks, that **I'm beginning to ask more questions**. Particularly when I read the newspapers or watch television of just listening to friends boast about events and stories that "actually" happened. I've noticed I've become more curious. If that "actually happened", how do you know? Show me the evidence?" (RJ2FBAS8, my emphasis).*

*"Now I feel myself asking more and more questions. Whenever I hear the news now on TV regarding out economy I find myself analysing what is happening and I **try to draw up further questions** in my head and see how they would affect the issue being raised" (RJ3FBAM2, my emphasis).*

Some students report that it was the nature of the design and enactment of an assessment strategy such as the reflective journal that enabled them to explore their own learning.

"Self-reflection has changed my opinion on my thinking process. The more I use it, the more I became aware of not only how much more I need to improve it but it can also reassure me as to my strong points also" (RJ1MBAJ4 my emphasis).

*"By studying psychology I believe it strengthens my skills in being a critical thinker as I have learnt the processes involved in memory, perception, individual differences and the mental processes involved in decision-making. This was of great benefit to me even though **it wasn't until I started writing this log [journal]** I realised I applied experiments and what I have learnt to this assignment" (RJ1FBAM5 my emphasis).*

*"...I find it more **difficult** to think critically and logically about issues in which I have **a personal stake**'...with regards to my weaker points I believe it is essential that I try to separate personal feeling and circumstantial evidence from the facts in making decisions, otherwise my own arguments will be biased.*

*However the first important step in doing this is recognising that I do place emphasis on my personal sentiment and allow myself to be swayed by this instead of seeing it from the point of view of others, and **through this log [journal] I have come to see that**" (RJ1FBAM9 **my emphasis**).*

I believe that the broader significance of these incidents is how one can see the developing autobiographical narrative emerging. Many students seem to be at the crossroads with regards to the epistemological and intrapersonal dimensions of their development towards self-authorship (Baxter Magdola, 2004). There seems to be a breakdown in the view of knowledge as certain and a reliance on authority to an evolving confidence in the recognition of their own values and sense of identity and its impact on their learning. There still appears to be a struggle with the contextual nature of knowledge and the recognition of the awareness that there may be flaws in reasoning seems to be directed at the flaws of others as opposed to recognition of the fallibility of their own claims.

Students reported awareness of and willingness to explore and integrate their learning experiences is an exciting discovery from this research. Most rewarding is the sense represented in some of the entries of the relevance of the skills learned in class for their personal lives. If such awareness and development were to continue then perhaps these students are developing their learning towards a deeper understanding of economics as *"the ordinary business of life"* (Marshall, 1920, Book 1.I.1) and thus fostering their own growth as effective citizens.

CONDITIONS FOR DOING THE SCHOLARSHIP OF TEACHING AND LEARNING

I have been fortuitous in the timing of my research into teaching and learning. As the barriers are slowly broken down between teaching and research, the broader church of scholarship is developing. This is beginning to create a *habit* and *habitat* within academia that encourages, fosters and enables research such as undertaken here. Through work undertaken with *Ionad Bairre*, the teaching and learning centre in University College Cork, with the support of *NAIRTL* and my colleagues in the *Irish Integrative Learning Project*, I have been encouraged and enthused to engage in my own journey of scholarship. A growing number of interested parties from various disciplines have found a language through which their teaching experiences can be discussed openly. I have gained much from such dialogues in terms of my own emerging practice as an intentional teacher. Therefore, I believe that the groundswell is now emerging locally, nationally and internationally that will continue to develop the conditions for the scholarship of teaching and learning in a positive light which will be to our benefit as educators, our students' benefit and thus perhaps most optimistically, society as a whole.



BENEFITS OF THE WORK

For me the benefit of this work is in viewing these journal entries as reflecting that these students may have genuinely discovered something about themselves along the way. My ever present whetstone; Magritte again shapes my thoughts on the potential of designing and enacting a pedagogy in a manner that fosters and enables intentional learning.

Figure iv: *La Clairvoyance (Perspicacity)* by René Magritte (1936).

Source: [http://wahooart.com/A55A04/w.nsf/OPRA/BRUE-5ZKEKN/\\$File/Magritte%20-%20Clairvoyance.jpg](http://wahooart.com/A55A04/w.nsf/OPRA/BRUE-5ZKEKN/$File/Magritte%20-%20Clairvoyance.jpg)

In *La Clairvoyance* Magritte explored human perception and understanding. The artist sees what the egg will become because he understands the laws of nature. Without such understanding (derived from his domain-specific and metacognitive knowledge) the painting would be impossible. I see the journey to self-authorship as something similar. By fostering and enabling reflexivity in student explorations with economics they understand more about themselves; their knowledge(s), their identities, their values, their relationships with others and thus; the basis for their knowledge claims. There is the emergence of recognition of their role and responsibility for their own learning and this experience thus becomes a transformative one. Such incidents of deep learning, if sustained, may lead them, their own artists; to better see what they wish to become as adults. This is a broader aspiration than to merely help them to understand problem-solving with economics, rather it may help them to place their economics education in the context of their overall development, and this I believe is the essence of intentional, purposeful learner.

LESSONS LEARNED

Through my work on the scholarship of teaching and learning I have been able to better define my role as a teacher. I have found a language and a habitat through which I can interrogate my own teaching practice as a matter of habit. It has enabled me to become aware of the importance of my internal values and identity to the development of this practice and has, in a way, mirroring that of my students, helped me to appreciate my own discipline and its role in the exploration of human decision-making in a more mature light. It has led me to fields of study as diverse as cognitive psychology, neuroscience, educational theory and adult development theory. In doing so, I have, I believe, become a more integrated teacher; more conscious of the contextual and constructivist nature of knowledge. This has encouraged me to encourage my students to explore their own economic reasoning in this broader canvas. Given how rich and exciting this transformation has been and continues to be for me; I am grateful.

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APPENDIX 1: MARKING RUBRIC FOR THE REFLECTIVE JOURNALS

CRITICAL REFLECTION

There is evidence here that the learner can view the experience from a variety of different viewpoints and dimensions. There is evidence of transformative learning where the learner's mental map has changed. The understanding of previous experiences has been transformed into a new perspective and the learner has challenged their own beliefs and worldviews.

90-100%

Specifically explores the student's own specific problem-solving processes. Explicitly explores 'why' they made the decisions that they did. Considers in detail what they have learned about themselves as problem-solvers. Set out explicitly what they would do differently. Communicates their reflections in a coherent, detailed and concise manner

80-90%

Specifically explores the student's own specific problem-solving processes. Explicitly explores 'why' they made the decisions that they did. Considers what they have learned about themselves as problem-solvers but would need to consider such issues in more detail to be of use to them as a tool of reflection. Sets out explicitly what they would do differently. Communicates their reflections in a coherent, detailed and concise manner

70- 80%

Specifically explores the student's own problem-solving processes. Explicitly explores 'why' they made the decisions that they did. Considers what they have learned about themselves as problem-solvers but needs to consider such issues in more detail to be of use to them as a tool of reflection. Does not set out explicitly what they would do differently. Communicates their reflections in a coherent and concise manner

DIALOGIC REFLECTION

The learner shows evidence of stepping back and considering the experience, of judging their behaviour and feelings. There is a consideration of alternatives. There is an attempt to connect this experience to other experiences

60- 70%

Specifically explores the student's own problem-solving processes. Explores 'why' they made the decisions that they did but needs to do so in a more detailed manner. Considers what they have learned about themselves as problem-solvers but needs to consider such issues in more detail to be of use to them as a tool of reflection. Does not display an appreciation of how their reflection changed their opinion on their own thinking process. Improvements needed in communication by improving coherency, conciseness and detail.

50- 60%

Specifically explores the student's own problem-solving processes. Explores 'why' they made the decisions made but not in detail so as to be useful in terms of being a future reflective tool. Considers what they have learned about themselves as problem-solvers but needs to consider such issues in more detail to be of use to them as a tool of reflection. Does not display an appreciation of how their reflection changed their opinion on their own thinking process. Improvements needed in communication by improving coherency, conciseness and detail.

DESCRIPTIVE REFLECTION

There is a description of an experience and there is some evidence of a deeper consideration of the experience. There is an attempt to judge thoughts, ideas and feelings about the experience. There is recognition that there might be differing viewpoints on an experience.

40- 50%

Explores the student's own problem-solving processes but at times lapses into general discussion on problem-solving. Explores 'why' they made the decisions but at times discusses 'content' as oppose to 'process' which is not useful in terms of being a future reflective tool. Does not consider what they have learned about themselves as problem-solvers. Does not display an appreciation of how their reflection changed their opinion on their own problem-solving processes. Improvements needed in communication by improving coherency, conciseness and detail.

30- 40%

Only engages in a general discussion on problem-solving. Explores 'why' they made the decisions but at times discusses these issues in too general a manner which is not useful in terms of being a future-reflective tool. Does not consider what they have learned about themselves as problem-solvers. Does not display an appreciation of how their reflection changed their opinion on their own problem-solving processes. Poor communication in terms of coherency, conciseness and detail.

DESCRIPTIVE WRITING

There is only a description of an experience. The learner does not engage in any reflective exploration on their description of this experience.

20- 30%

Only engages in a general discussion on problem-solving. Does not explore 'why' they made the decisions made. Does not consider what they have learned about themselves as problem-solvers. Does not display an appreciation of how to reflect. Very poor communication in terms of coherency, conciseness and detail.

10-20%

Only engages in a general discussion on problem-solving. Lacks relevance as a reflective tool. Poor communication throughout.

0-10%

Lacks any relevance in terms of what the student was asked to do or did not submit

APPENDIX 2: INCIDENTS OF INTENTIONAL LEARNING FROM THE REFLECTIVE JOURNALS

The following are some additional incidents of intentional learning as represented in the reflective journal entries of the students of Ec2107 in 2007/2008.

Incidents of growing confidence asserting their own values and identity.

"Now I will feel more confident when faced with new challenges as I'm no longer satisfied with finding only one solution to a problem and my ability to question myself in a search for these solutions are sure to be of major benefit to myself in the future" (RJ2MBAM4, my emphasis).

"Being open to other's opinions is a great attribute and while it can make me question my own beliefs I shouldn't let it belittle my own opinions and thoughts. Perhaps I need to work on having confidence in my opinions as I have great confidence in others" (RJ1FBAJ9, my emphasis).

Incidents of a growing sense of ownership

"I loved every minute of this assignment as it allowed me to go out and express myself through the economics that I believe in" (RJ2MBAS5, my emphasis).

"As dumb as it sounds, this possibly was the first assignment I have ever really thought about carefully and eventually I got used to thinking on my own" (RJ1MBAS15, my emphasis).

Incidents recognising the fallibility of the knowledge of others

"... now I am aware that just because something is published, it doesn't mean that it's completely faultless or true" (RJ1MBAS11, my emphasis).

Incidents recognising the fallibility of their own knowledge

"I believe the opinion of others gives you the information to extend and improve your beliefs on an issue. It could also help you to see that there are two sides to every story and not just your own" (RJ1MBAS9, my emphasis).

"The most important aspect for the research question is to make it appropriate. This is based on your own personal perception of what is the problem. However, your perception might be wrong, even though logically you were right. If you are wrong then your hypothesis is wrong" (RJ2FBAS2, my emphasis).

"...I felt I criticised the article from a personal bias at times. Although I did this, I thought my argument was genuine. The next time however, I would like to use more problem-solving and argumentative tools to criticise an article and remain objective through out my analysis" (RJ1MBAS12, my emphasis).

Incidents recognising the constructivist nature of knowledge

*"As I was completing this assignment I found that even though I agreed that the waiting lists for occupational therapists were a disgrace, I found myself think[sic] about the other side of the issue...**I wanted to hear their side of the argument, and I thought it was only fair to allow them to voice their opinions**" (RJ1FBAM1, my emphasis).*

***"People's background and upbringing also play a key role on how they are persuaded by an argument,** not everyone approaches an article with a clear mind and so everyone takes a different interpretation from an article" (RJ1FBAS2, my emphasis).*

Incidents recognising the transfer of learning and the transfer for learning

“...the subject was how to apply for colleges through the CAO and how the point system works. It was in the not too distant past that **I was actually going through the same scenario myself and this experience gave me confidence** that I had reasonably good knowledge on the subject and in my **own personal opinion it also gave me a licence to join in the argument**” (RJ1MBAS15, **my emphasis**).

“I feel I can apply knowledge I have learnt elsewhere into other areas that aren’t obviously related to it. I did this when discussing the article ‘Building Roads to Nowhere’ I applied the theory of being loss averse in decision making to the way the writher [sic] of the article talked about road infrastructure. Even though he did this very subtly I was able to identify the tactic he was using. He was doing this in order to manipulate the reader’s feelings. I also felt myself **applying concepts my ballet teacher** would tell us, describing how an audience will watch a performance and look for different things, based on their experiences, training and expectations, to my assignment. **It made me think about my argument in a different light,** how readers will draw on much more information than is presented to them in the argument to find their conclusion. This understanding helped me realise the potential the author had in trying to evoke memories for the reader, pushing them into agreeing with the conclusion offered in the article” (RJ1FBAM5, **my emphasis**).

“I also think my critical thinking skills have improved as **I can no longer read any book, article or text message, even watch television without noticing myself judging and analysing everything,** when I didn’t even know what it was or how to do it before our first assignment. I am now learning to use my new skill more effectively” (RJ1FBAS2, **my emphasis**).

“...I now have the ability to think about things differently but this has also had **knock-on effects with regards to other modules I am studying in college.** In my opinion I have developed the necessary skills needed to effectively answer a question or scientifically solve a problem. Due to these newly acquired skills I feel it will help me in **my upcoming summer exams, assignments and essays** also” (RJ3FBAM5, **my emphasis**).

“I found that following the guidelines and remembering our lectures I learnt that problems can be easier to solve if you just use the right methods....**i feel that learning this skill about solving problems is one of the most important aspects we need and will use in our everyday lives** and that is a trait we need to have to get us through daily tasks” (RJ2FBAJ4, **my emphasis**).

“I think in the long run **having critical thinking skills is very important not just in economics but in all subjects and even in everyday life.** Being able to see through someone else’s argument is an important life skill as it means that you are less gullible, naïve and less easily persuaded by poor arguments” (RJ1MBAJ11, **my emphasis**).

Incidents recognising responsibility for their own learning

“The first thing that came to mind after reading this question [q5] was **self-belief – that is what I would change. I would believe in myself more.** In an odd way, I wish I knew then what I know now. **I suppose it ultimately comes down to confidence in my ability to be objective.** I initially felt rather uninformed, inexperienced or even overwhelmed, however, **looking back,** this was not entirely the case. I had a pool of information whether from my seminars, previous experiences etc, **I just was not aware of this at the time**” (RJ1FBAJ3, **my emphasis**).

“...although I claimed in the previous question to have the ability to listen to others opinion and take a step back, I find I don’t actually give in to their argument and admit defeat. 90% of the time I genuinely believe I’m right. **This stubbornness is a major weak point in trying to be a critical thinker.** It may seem that I am listening and considering the argument put forward but realistically it would take a really good argument to make me admit to being wrong. **This, I know is quite an immature attitude, one which I hope to grow out of by the end of the year**” (RJ1FBAJ11, *my emphasis*).

“...I think that the key to problem-solving is to **not let any detail go unnoticed as if you do it could be to your demise**” (RJ2MBAS6, *my emphasis*).

“From my work in the Sherlock Holmes Workshop, along with what I learned about problem solving through the assignment I have done, I have found that with regard to the Robin Hood Business Consultancy workshop that we explored before Christmas I would now go about tackling the problem differently. **I would not dive straight into the problem by looking for fast and quick solutions;** I would now try to **break the problems of Robin Hood down** into different areas by asking questions about each problem. **I would take more time** to really study the evidence at hand...” (RJ3FBAS1, *my emphasis*).

“...**I have become more aware of the need to set out a clearly defined initial question, followed by comprehensive and intelligent instrumental questions which aim to address the initial question.** ...I realise that in my initial approach to the Robin Hood assignment I failed to combine my observations, insights and conclusions in a logical progression and tended to convey my points in a sporadic nature” (RJ3MBAJ19, *my emphasis*).

“Viewing economic problems as if a **detective** would has changed my outlook. The **way in which I solve problems** has come more to my attention, rather than simply using the method I do, it now comes into **question** why I use it. ...for it is not in this course that I have broadened my knowledge of economics, but instead **broadened my use of Economics**” (RJ3FBAS3, *my emphasis*).

“When I looked at the Robin Hood consultancy assignment, **I never knew the scientific problem solving process elements that could be used to aid me in solving the crisis** for Robin Hood and his merry men. Therefore, going on my intuitive knowledge and past experience of economics I approached it in a way that what I now know was wrong and insufficient, to come up with a plausible solution. I remember thinking that I’ll write down any economic concepts that I can pluck out of my head and read the article and see if I could tie the concept with the action/problem in the story. This however, did not allow me to think like a problem solving scientist. **Instead I was a person avoiding the problem at hand,** linking concepts to the article so as to sound smart, getting nowhere in the task that was set out in the first place. I also just picked out sentences that sounded like problems, not depicting the overall problem out of the entire article, which essentially needed to be solved. **It was a recipe for disaster**” (RJ3FBAS4, *my emphasis*).

“I have learnt a great deal about my own problem-solving process from our work in the Sherlock Holmes workshop and assignment. I have come to the conclusion that **I don’t put enough thought into the process itself.** Before doing this assignment I wouldn’t have dreamt of conducting research into the problems that I was confronted with, before attempting to solve them. I have certainly

learnt the importance of taking my time when deciding how best to solve the problem. As a result, ***I believe that I am now much better equipped when it comes to solving problems academically and otherwise***” (RJ3MBAS4, *my emphasis*).

“I’m taking away everything from this workshop, I honestly feel I’ve learned a whole lot from doing this workshop and the assignment. ***I now would never think to try to solve something without looking at all the facts and analysing like a real economist*** would, as I probably wouldn’t do a great job at solving it” (RJ2FBAS5, *my emphasis*).

INTEGRATIVE LEARNING ON A CRIMINAL JUSTICE DEGREE PROGRAMME

Sinéad Conneely and Walter O'Leary

CONTEXT

Waterford Institute of Technology (WIT) is a third level institution which locates its origins and ethos in vocational and technical education. The School of Humanities is well established and unusually vigorous but it does not conform fully to the liberal education model that a university offers: for example, there is less wariness about linking liberal education to vocational ends. Coupled with this unusual environment for a BA curriculum, the course we have chosen to study is also unusual in itself. The BA (Hons) in Criminal Justice Studies is an interdisciplinary programme which combines modules from a range of diverse disciplines including Law, Sociology, Psychology and Business. It is a themed arts degree, which provides the student with discipline specific training in subjects which are chosen to relate to the theme in different ways. The aim of the programme is to develop professional criminal justice practitioners of the highest calibre who will have the academic and vocational skills necessary to deal with a diverse range of problems which they will encounter during their careers. Consequently, those involved in the training of students who intend to work in this area will need to ensure that they develop academic qualities that include a broad knowledge base in their field, research skills, a proactive problem-solving approach and the ability to work independently, or as part of a team.

The course compels integrated learning by both its very structure and aims. Students must become intentional and integrative learners if they are to put their academic training to practical use in a way that encompasses the several strands of their programme. The need for good quality liberal education to be integrative in order to build habits of mind that prepare students for life and to support vocational training are married within this course. However, as Gale observed:

"[W]hile integrative learning is by no means the be-all and end-all of undergraduate education, it is certainly a central feature of liberal learning, a core capacity for academic success and life long meaning making" (2006, p. 11).

This is typified within this course structure as while the modules from these diverse range of disciplines are examined on an ongoing basis, each is assessed within the confines of that particular discipline and this does not attempt to evaluate the level of integrated learning achieved by the student. The programme represents an integrated curriculum but this may not lead to integrative learning without the provision of further student learning supports (Malnarich and Lardner, 2003). Assessing the success of the course in this regard becomes a vital element in supporting its *raison d'être* and there can be no room for complacency. The global factors that compel educators to bolster integrative learning, such as new technology, globalisation, and academic dialogue across disciplines have also had an impact in Waterford. The global economic downturn and national recession have focused our minds on graduate employability as never before, with flexibility and mobility of workers now required (Huber and Hutchings, 2004). Thus, external and internal factors combine to propel the cause of integrative learning into the limelight for course teachers.

At the outset, as researchers designing this project, we were optimistic about the ability of students to act as integrative learners. We founded our optimism on the nature of the course itself, which as a themed degree encourages students to relate their learning to a focal point. The applied social studies component of the degree is large and the lecturers are very

experienced in relative theory to practice and utilise a range of methods in support of this integration, including reflective learning journals and portfolios. The core modules – research methods, critical thinking, and professional and personal development – were designed to cut across discipline boundaries and encourage integrative thinking. Self-directed learning was promoted in all areas but specifically supported by the inclusion of an independent study module in the final year. Assessment methodologies were various and imaginative, encompassing examination, essay, presentation, portfolio, and team projects. The Institute as a whole was showing a new consciousness of the need for integrative learning beyond theory to practice, with two new Bachelor of Arts degrees within the department building in interdisciplinary seminars to aid integration of major and minor disciplines into student thinking.

At the time we constructed the research proposal, there were 150 students on the programme, with 10% over the age of twenty-three and seven nationalities represented in the student body. We were confident that at least by the third year of the course, students would demonstrate the integrative learning capacity which is now much sought after in the market place. We expected that mature students, owing to their superior life experience, would score particularly highly in this regard while students with a strong academic record reflecting intentional learning, would also be very successful.

Only two elements gave us any cause for doubt. Firstly, the course has been modularised and semesterised along with all the programmes offered in the Institute. While this has advantages for students, our experience as lecturers has been that it can encourage the compartmentalisation of knowledge. Earlier elements are often left to one side once they have been tested and there is little incentive for students to integrate their learning either within or between disciplines. As such we considered that the system could be operating as an actual barrier to integrative learning. All modules were chosen with reference to their relevance in the criminal justice sphere both from an academic and vocational point of view but the course depends on the individual lecturers linking their work to the overall theme of the course. Secondly, and possibly more problematically, the course did not specifically offer any form of institutional ‘scaffolding’ to encourage, support and build integrative learning skills. Aside from the core modules, students were instructed and assessed within disciplines without reference, necessarily, to other aspects of the course. Accepting the premise of Huber and Hutchings that integrative learning requires work and is unlikely to occur without commitment and creativity from educational institutions, we had to ask ourselves if we did enough as course designers to support the process. Only research could provide that answer.

FRAMING THE QUESTION

The criminal justice programme is a relatively new addition to the WIT landscape, and given the diverse range of disciplines and course participants, we wanted to devise an assessment of current integrative learning levels. The assessment model chosen was a problem scenario. Problem based learning is common on the course and is also an important pedagogy of integration, so that it is at once familiar to the students and supportive of an integrative approach (Gale, 2006). Input was sought from specialists in each discipline, ensuring that the problem based scenario posed would be aligned with the everyday realities as encountered by professionals in the field. The scenario was presented without prior notice to first or third year students, for the purposes of comparison.

After a brief introductory talk, students were asked to reflect on the scenario provided and based on their prior learning, to offer an evaluation from the perspective of each of the core

disciplines. In addition, we asked the students who undertook the task to complete a simple survey on their perceptions of the problem posed. Students were asked to rate the difficulty of the exercise and to express a view on course changes that might strengthen the integrative learning potential of the programme. Answers were then reviewed by a team and awarded a numerical grade.

GATHERING THE EVIDENCE

Based on our experience as lecturers, we did have a number of expectations with regard to the research findings. We believed that final year students would be more successful as integrative learners than first year students, given the influence of core modules within the course. We expected that mature students, with superior life experience, would score higher than school leavers, both in first and in third year. Furthermore, we assumed that students with higher points were likely to achieve higher grades than students with lower points and students with better grade averages on the course would certainly score higher than students with lower grades. In essence, we expected the intentional student, particularly if mature, to exhibit the ability to draw the strands of their course together in an integrated way and apply the academic knowledge to a real world scenario. A detailed examination of the results proved that some of our assumptions were flawed and produced some startling findings.

The challenging of our own preconceptions required an overall analysis of the integrative learning capacity of students, irrespective of the number of modules completed. Therefore, for reasons of consistency and ease of analysis, an alphabetical grading system was used on all the material submitted by all the student participants. Given the diversity of the curriculum and the student cohort, allied to the range of analytical possibilities available, the analysis of the results was quite challenging. These considerations required us to make choices with regard to those outcomes which would best suit our needs as course designers and lecturers and would also enable us to ensure an enhancement of the integrative learning experience of the student cohort. Consequently, we decided to concentrate on outcomes which would be most pertinent to these immediate needs and therefore we organised the information under a number of relevant headings as outlined hereunder.

EMERGENT FINDINGS AND BROADER SIGNIFICANCE

Comparing First and Final Year Students

A decision was made, at an early stage in the research design, to test the integrative learning achievements of both first year and third year students, in the expectation and hope that this capacity would improve as the student progressed through the course. However, contrary to our initial expectations, some first year students displayed a remarkable ability to undertake an integrative view of the scenario presented, displaying a learning experience which was inclusive of all the major subject areas on the Criminal Justice programme. While it is true that a greater proportion of final year students did offer such an analysis, few were as in-depth, or incisive, as that of the first years who displayed this ability. Overall, however, final year students achieved better grades as a far greater proportion of first year's displayed little ability to integrate their learning across the spectrum. These findings indicated to us that first year students generally come into the system with an innate ability to engage in integrative learning but some students have a particular orientation towards this kind of learning. However, this ability is not sufficiently fostered during the degree programme to show significant improvement by the time the students complete their studies. The disparity between first and third year results was not as great as we would have expected and indicted to us that more needs to be done to support integrative learning at all stages of the programme.

Comparing Mature Students with School Leavers

An analysis of the results in this category displayed a marked difference between the integrative learning potential of first and final year mature students, with the latter displaying a far greater ability to identify issues across the range of subject areas. However, given the amount of extra tuition which final year students had received, allied to the fact that some of them had been higher achievers initially, the difference was not as significant as we had expected. It should also be noted that there was a much smaller cohort of students in final year and this may have impacted on the eventual outcome as they would have received more intensive attention than was available to the larger first year class. Generally, we expected mature students to be better integrative learners, as our experience in the classroom suggested that mature students are excellent 'outside the box' thinkers. However, while the final year mature students scored highly in the assessment, the best answer came from a first year school leaver, contrary to all expectations.

Gender and Nationality

A marked disparity was noted under this heading, with females clearly displaying the ability to identify and analyse issues across a range of disciplines as against their male counterparts. Of all the students who achieved a high result, four out of five were female; the only clear exception being one final-year male student who has consistently had excellent results in all modules. This result was consistent across all classes of students, irrespective of age or nationality. Furthermore, it was consistently noted that females achieved higher grades than their male counterparts, with 'D' grades being only recorded against males. This was another unexpected finding, as our experience as lecturers had not indicated a gender difference in learning style or attainment. With regard to the nationality of the participants, the absence of English as a first language did not prevent students from achieving mid-range results. Before the analysis of the outcomes we were anxious to ascertain as to whether a student who received their initial education in another system would display a different ability in terms of integrative learning, but the results showed that non-Irish students did not differ from their Irish counterparts in any significant respect.

Educational Attainment Levels on Entry

Once again, our preconceived ideas were at variance with the results achieved as those with the highest entry points did not, with few exceptions, achieve the best results. There was also a disparity of results between first and final year students in this regard. For example, a direct correlation between first-year students receiving an 'A' grade on the research assessment and high points on entry to the course was apparent. However, this did not apply in the third year, since final-year students receiving 'A' grades entered with mid-range points, or alternatively were mature students. A breakdown of the results showed that the average Central Applications Office points of students receiving an 'A' grade was 435; those receiving a 'B' grade averaged 335; 'B'-averaged 317, whereas those obtaining a 'C' averaged 338 points. It would appear from the research that first year students who are successful, perhaps intentional, learners are likely to be good integrative learners also. However, the link between second level success and integrative learning success is broken during the course and is not visible by the time the student reaches the final stage of the programme.

Modular Results versus Integrated Learning Grades

Given that each module was assessed within its own specific discipline we felt that it would be instructive to compare modular results against the generality of grades achieved in the students' integrated learning outcomes. Amongst first years a reasonably consistent correlation

was apparent as between modular results and the grades achieved in the integrated learning assessment. This was consistent as between school leavers and mature students and irrespective of nationality.

However, when it came to final year students, the divergence was quite remarkable, particularly with regard to mature students. Only one mature student received an 'A' grade with the majority, including non-Irish nationals, receiving a 'C' and this despite their prior learning experiences and having consistently achieved better modular results than their school leaving counterparts. By contrast some school leavers, whose modular results would only have been mid-range, displayed an ability to undertake an integrated and holistic examination of the scenario provided and achieved outcomes which were much better than their modular results would have indicated. Without undertaking further research we can only surmise that mature students have learned 'to conform' and only deal with the specific direct outcomes as required within a discipline rather than taking an all encompassing view.

Forms of Analysis

While students were given some direction with regard to the nature of the exercise, all were allowed respond to the scenario as posed in a manner which they considered most appropriate. Once again, our preconception that the vast majority of students would incorporate their prior learning was at variance with the outcomes achieved. While the majority of students did approach the problem as an analysis of an academic question, a number adopted a completely therapeutic approach. The latter approach was most apparent amongst first-year males and final year mature female students. We failed to explain why these two groups of students in particular offered this approach, but we believe that students may have fallen back on a very practical and common sense approach to the assessment because they were intimidated by the novelty of the task.

Student Feedback

Feedback was sought from students who participated in the research both formally and informally. The scenario question addressed by the students seemed to elicit strong reactions from students, divided equally between those who found the exercise difficult, or very difficult, and those who found it easy and enjoyable to complete. It seems that students really liked or really disliked the format, with few responses in between these positions. Generally, the majority of students believed that they understood what was required of them in relation to the question, even if they found it difficult to answer. Interestingly, all students agreed, or strongly agreed, that they would benefit from tutorials which would help to make connections between discipline-specific modules. Furthermore, they all agreed, or strongly agreed, that a change of teaching method, which emphasised the connections between course subjects, would be welcome. So, regardless of whether the student found the research easy or difficult to complete, or whether they scored well or poorly and regardless of gender, nationality, age or stage of the programme, students welcomed an integrative approach and teaching methods which supported this form of learning.

CONDITIONS FOR DOING THE SCHOLARSHIP OF TEACHING AND LEARNING

If our research findings were a surprise to us as course developers and lecturers, so also was the research environment. It proved to be far more supportive than we expected, with lecturers on this and other programmes taking an active interest in the research. New degrees within the department, developed since the introduction of the criminal justice programme, took very concerted measures to scaffold integrative learning, demonstrating that this is now an acceptable and even laudable programme aim.

However, it was the opportunity to conduct the research in the supportive environment of an enthusiastic research team at University College Cork which ultimately provided the momentum for the research. Regular contact with academics with a similar interest in this area bolstered our resolve to engage in active research and to implement the findings for the benefit of students. We were introduced to new ideas, perspectives and challenged to look at student learning in new and innovative ways.

BENEFITS OF THE WORK

The research findings have provided important opportunities to inform our lecturing and to foster a new kind of intentional teaching within the programme. Modules, which were devised to strengthen integrative learning, can be further strengthened and re-orientated to this end, from foundational in first year to assessment of final results in third year. The research provided an opportunity to obtain feedback from the students in a way that aids the development of intentional teaching. The course is undergoing review at the moment, which gives us the chance to improve our curriculum design to this end. However, what we have learned from student feedback on this research is that structural supports for integrative learning are only one part of the picture and changing the culture of the course, including teaching methods, is part of the framework also.

The risks that we now face, and must guard against, include a reversion to traditional teaching methods which have not been as successful as we need them to be in ensuring an integrated learning experience for students. We must ensure that all lecturers, at every stage of the course, buy into the process to combat the institutional framework which seems to represent a structural barrier to successful integration of learning. We intend to focus minds on the need for integration by adopting techniques and practices which foster a culture of integration, such as a requirement that a specific book be read and discussed by all staff and students during the semester. We have many advantages on the criminal justice programme in terms of integrative potential, it is a matter of focusing our collective minds on this task and being intentional in our work.

LESSONS LEARNED

The results of the research undermined our assumptions about student learning and compelled us to revisit the way we lecture. We discovered that we must be intentional teachers if we expect students to fulfil their full potential as intentional learners. Barriers to success may be structural and endemic in the system, but we must attempt to overcome them through research, reflection and change. Fostering a culture of integration at module, course and department level is vital. Integrative learning must be enshrined from beginning to end, and must be available to all students regardless of academic strength (Huber, 2006). If we value integrative learning skills, then this must be communicated to students and we, as teachers, must overcome our own fear of the unknown and adapt our pedagogies in response. Dialogue, conflict and sharing of authority and control within the classroom, a movement to the student centred, to engagement and experience, a new world of teaching reflecting the new world that we see around us (Gale, 2006).

Our research showed us that students were not acquiring integrative skills at a rate that we would have predicted, given the nature of the course and the specific inclusion of modules designed to that end. We now see that integrative learning must not be an isolated event but a part of the part of intellectual life, part of daily teaching practice, indeed it must become part of campus culture. The good news is that, hopefully, we can strengthen this aspect of

student learning and we can continue to engage in research to ensure that our students get the best education that we can offer.

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THE USE OF LEARNING JOURNALS IN LEGAL EDUCATION AS A MEANS OF FOSTERING INTEGRATIVE LEARNING THROUGH PEDAGOGY AND ASSESSMENT

Shane Kilcommins

THE CONTEXT

In the late nineteenth century Christopher Columbus Langdell, Dean of Harvard Law School, introduced a new pedagogy in law that was designed around Socratic teaching. Prior to this, most common law jurists had emphasised the importance of artificial, natural law reasoning which was prone to be more subjective, speculative, value laden, and ultimately illogical (Davies, 1994, p. 110). This new pedagogy placed law cases at the centre of students' learning, and demanded much more from the students in terms of analysis and defence of legal explanations. In particular, it involved a case-dialogue method, where students are called upon to recount facts, argue legal principles and explain their reasoning in the lecture hall before an authoritarian lecturer. All of this was designed to mirror the combative realities of adversarial proceedings. So, for example, in a lecture, the lecturer might demand of a student the facts of a case, the legal points at issue, the court's reasoning by reference to other cases, the underlying legal doctrine or principle, and the effect that an altered fact pattern might have on the outcome.

The case method was premised on a number of propositions. First, the study of law was designed around two *scientific* components: empiricism and rationalism. As regards empiricism, the raw data of appellate cases was for the lawyer what chemical compounds were for the chemist. Students were expected to read cases for themselves and discover and understand legal principles. The rational component was the assumption that legal reasoning must be deductive (Hoeflich, 1986, p. 120). Rigorous logical reasoning, honed through reading caselaw, was the trump concern, even at the expense of other legal skills. Langdell phrased it in the following terms:

"Law, considered as a science, consists of certain principles or doctrines. To have such a mastery of these as to be able to apply them with constant facility and certainty to the ever tangled skein of human affairs, is what constitutes a true lawyer; and hence to acquire that mastery should be the business of every earnest student of law. Each of these doctrines has arrived at its present state by slow degrees; in other words, it is a growth, extending in many cases through centuries. This growth is to be traced in the main through a series of cases; and much the shortest and best, if not the only way of mastering the doctrine effectually is by studying the cases in which it is embodied" (quoted in Schofield, 1907, p. 279).

For this purpose, the *library* rather than the courtroom or law office was the appropriate workshop. As Langdell noted:

"We have also constantly inculcated the idea that the Library is the proper workshop of professors and students alike; that it is to us all what the laboratories of the university are to the chemists and physicists, the museum of natural history to the zoologists, the botanical garden to the botanists" (quoted in Hoeflich, 1986, p. 120).

Thirdly, law is viewed as a *closed* system. Broader social, cultural, moral or political considerations should be abandoned in pursuing these hermetically-sealed legal principles. In this way, law could be viewed as determinate, an *"apolitical, value-free, technocratic discipline"* that was divorced from practical outcomes or concerns of justice (Carrington, 1995, p. 707). Fourth, the lecture method of teaching law was to be replaced by the Socratic *case method*, whereby general principles of law on particular issues would be worked out in the classroom through interaction between the lecturer and students on relevant cases (with the headnotes omitted) (Chase, 1979, p. 332). In terms of student learning, this represented an important switch away from the emphasis on *learning legal rules* to

an emphasis on *learning legal skills* (analysis, argument, reasoning, synthesis). Fifth, the *casebook*, rather than the textbook, would be employed as a teaching aid in which the really important cases in a particular field were selected and arranged in systematic sequence (Kenny, 1916, p. 187). Finally, Langdell's conception of law was "*court-centred*", premised on case-law as the primary source and modus operandi of law (Twining, 1985, p. 12).

Gradually Langdell's case method approach became a model for most other university law schools who valued the systematic and rigorous training that it provided. The law schools of Columbia, Michigan, Northwestern, Western Reserve University, Cornell, Chicago, Cincinnati, Stanford, Illinois, Hastings, Notre Dame, Hastings, New York and Yale all adopted the method by the early twentieth century (Kimball, 2004, p. 34; Bartholomew, 2003, p. 379). It was also employed by Australian and English professors. As Theodore S. Woolsey at Yale noted in 1924: "*The old way bred great lawyers. But like the caste mark of the Brahmin, the case system is the cachet of the crack law school of today*" (quoted in Bartholomew, 2003, p. 388).

The case method soon became the 'signature pedagogy' of legal education in most common law countries. It was, and still is, viewed as being important in training students in the basic skills of law, especially in analysing, distinguishing and synthesising cases. It also encourages students to trace historical precedents to their original sources, and hones their reasoning and argumentative skills in concrete situations. It is concerned with demonstrating what the courts would do in fact, excluding thereby social, political, theoretical and historical contexts. This encourages students to place rules into categorical systems in order to understand law's internal point of view. The desired learning outcome emanating from the case method is that a student will understand that law emerges from a rigorous analytical procedure called legal reasoning. In making a science of legal reasoning, it helps to validate the law, to give it a 'structure of truth'.

There are, however, weaknesses in the Langdellian approach which undermine its epistemological and pedagogical contribution. Its epistemological emphasis on scientific reasoning, especially the deductive-inductive logic it adopts in respect of case law, is very effective as a legitimisation narrative, but once you scratch the surface, it will quickly be discovered that it conceals far more than it reveals. The coherency and fixity it seeks to inculcate in law students is beset by a number of difficulties that seriously undermine its credibility. How, for example can it account for the interpretive leeways of language? Or the belief that facts are elusive and will need to be constructed? Or the premise that our judges are not asocial or apolitical operators but bring their own experiences and value systems to bear on disputes before them? Or the argument that law is not a seamless web which has already logically covered every eventuality? Or the notion that law employs principles and standards (such as the 'reasonable man', 'proximity', and 'reasonable foreseeability') that are malleable? Or the suggestion that ruptures in social, economic or cultural conditions will require solutions and ways of legal thinking which will not be found in the static past of previous judicial decisions? Langdellianism does not contend with such complex, interdisciplinary issues, and consequently students do not have to contend with them. Instead, through dogmatism, and a severe form of Nelsonian blindness, it claims that the pathway to objective 'truth' can be mined through doctrinal legal reasoning alone.

EPISTEMOLOGICAL SHORTCOMINGS

Many of these criticisms have begun to emerge in recent years. In terms of its epistemological shortcomings, commentators, for example, increasingly began to question whether it was proper for law to be categorised as a science in the way that we perceive the natural or

physical sciences. Is Langdellianism not merely dogmatism emphasising 'taxonomic stock-taking' (Hutchinson, 1999, p. 302) through the raw data of reported judicial decisions? Was it not simply a vital part of the project of modernity whose primary function was to rid the western world of local, contingent, irrational, and non-objective phenomena?

Interpreters of social rules that are designed to regulate human behaviour, it was increasingly argued, do not always operate with data or methods which provide systematic exactitude or yield reliable predictions. Law is premised on facts and a grammar of rules that do not easily lend themselves to algebraic formulas. Of course, and as far as is practicable, law should attempt to rout personal equations and the contingent from the courtroom so as not to be arbitrary, corrupt, or partial. This is an important ideal that we should all strive for one that is enshrined in our conception of the Rule of Law, but Langdell (and other legal educators) went further in attempting to make a science of law.

The value of cloaking legal method in a scientific garb is obvious: it will appear objective, value free, rational and fair. "*Establishing the scientificity of law*", as Davies notes, has "*seemed an essential way of reinforcing law's claim to truth*" (1994, p. 97). This begs two questions: first, to what extent is our law system based solely on a rigid scheme of deductions derived from *a priori* principles? Second, even if it is not, could we guarantee that it would be in the future? As to the first question, whether law is a pure geometrical exercise, most commentators would agree that judicial decisions do not have an intrinsic order. They "*are not the products of logical parthenogenesis born of pre-existing legal principles but are social events with social causes and consequences*" (Cohen, 1935, p. 847). An analysis of cases in any particular field of law therefore will not therefore simply reveal any rigorous science, premised solely on *a priori* propositions, in operation.

As to the second question, law is a social endeavour. This limits the extent to which certainty can be achieved. Because it is social (and normative), legal propositions are not verifiable in the same way that empirical propositions are (e.g. the boiling point of water). How, for example, can we be sure that different judges would arrive at the same deductions in any give case (given their social conditioning, the vagueness of language, and the elusiveness of facts)? How, particularly in times of rapid social and industrial change, can we guarantee that for every legal dispute there is a fixed antecedent rule already in place which will permit simple, formal syllogising (Dewey, 1924, p. 26)? In addition, is it sufficient and morally just that a judicial finding is valid simply because it follows a deductive logical form? What about the ethics of the finding, and the morality of the decision? Moreover, even the traditional sciences rely on particular ways of knowing and organising events and data that are not fixed and absolute (Kuhn, 1970; Foucault, 1991), but are influenced by power relations, shared beliefs, and subjective interpretations of collecting and interpreting data. All of these phenomena militate against the possibility of ever achieving the mechanistic application of deductive-inductive logic in law through the legal syllogism.

Other commentators would also suggest that certainty and determinacy in law is a myth for a number of reasons. To begin with, fidelity to the *a priori* principles of the past in some instances will be unsuitable in a contemporary context having regard to changes in cultural, social, political, economic and moral contexts (Pound, 1908, pp. 605-623), and will demand that the trier of fact either overturn the earlier precedent, or manipulate it to produce a fairer result. In this sense, legal rules are not hermetically sealed from broader considerations (Pound, 1905, p. 344; White, 1972, p. 1004). Second, law is based on language, not on algebraic concepts, and language by its very nature has an open texture that often gives rise to a number of legitimate interpretive choices. Language is not (always) a transparent, objective medium. It is enmeshed in subjective reference points (signifiers) for the both the listener and the speaker (Patterson, 1996, pp. 151-180), that militate against the objectivity of interpretation. Langdellianism, therefore, relies on a form of essentialism, when it

posits the view that there are essential meanings to words that can be objectively understood through a process of adjudicative neutrality, rather than meanings having to be chosen through a process of interpretive construction.

Third, much of the Langdellian approach is also centred upon the reasoning set out in upper court decisions. But these courts are not fully representative of the workings of the territory of law (Grossman, 2006, p. 67) or even the court system more particularly. Moreover, there does appear something very indeterminate about the process by which judges deductively apply rules to facts as part of the seamless web of law. In short, there does appear to be an element of hollowness to formalist claims about the objectivity of doctrinal legal rationality. Some commentators suggest that the coherency of law is inseparable from *subjectivity* (which formalism seeks to deny). As Balkin (1993, p. 105) notes: “[S]ubjectivity is not an intrusion into law - it is a constitution of law ... [T]he fact of the matter is that legal coherence is the product of a hermeneutic interaction. It is the result rather than the object of a process of understanding”. To begin, there will often be a choice in the rules, principles or standards to apply (and the enforceability of same), or exceptions to invoke, thereby permitting arguments which purportedly follow the logic of legal reasoning to lead in different directions with different outcomes. Statutes, too, can “be extended pretty widely and contracted pretty narrowly...to catch or let out the situation you are deciding” (Radin, 1925, p. 361). It will also be possible to confine a particular ruling to its particular facts so as to avoid having to follow it. Thus doctrinal legal rationality is a process which is much more open to manipulation than that conceded by those committed to Langdellian case method (Llewellyn, 1960, pp. 72-73): “every decision is a choice between different rules which logically fit all past decisions but logically dictate conflicting results in the instance case” (Cohen, 1931, p. 215). Furthermore, whilst appeal courts mostly concern themselves with the niceties of legal particulars (substantive and procedural rules), trial courts have to contend themselves with facts, and facts by their very nature are elusive. They do not comprise the hard, objective, untainted data of science (Frank, 1947, p. 1307).

The interpretation of facts and legal rules is also in part based on the predispositions of the trial judge. Individuals are not asocial, apolitical or amoral automata. Although there may be specific reasoning skills, some commentators would argue that the “correct legal solution” is usually nothing more than the “correct ethical and political solution” at a particular point in time (Kennedy, 1983, p. 20). We all have attitudes, preconceptions and beliefs, and operate within particular social and cultural paradigms, which colour our view of the facts and affect us in our judgments (Quinn, 2002, p. 146). Why should we consider judges to be any different (Frank, 1947, p. 1308)?

Of course, attempts to highlight uncertainty in our legal system can be as dogmatic and one-dimensional as Langdellian claims to certainty. It can ignore the inner logic of law and the importance of analogical reasoning, the constraints placed on the judiciary by fidelity to precedents and various canons of interpretation and construction, the importance to judges of being part of “an interpretive community” who dislike their judgments being overturned, and the fact that many cases are relatively straight-forward where there will be broad agreement on the relevant facts, legal principles and the interpretation of language (Hart, 1961, p. 132). All of this is true. Nevertheless, the issues documented here about the possibility of uncertainty in law should raise sufficient doubts about the epistemological credibility of Langdellianism as a means of producing truth in law. Law is more impermanent, flexible and artificial than formalists would have us believe.

PEDAGOGICAL SHORTCOMINGS

In terms of its pedagogical shortcomings Langdellianism, it is argued, reified common law principles, premised on case law. By its very nature this gives students a very partial view of the legal system, ignoring for example all 'law jobs' that do not involve court work, but also downplaying other sources of law such as statute law which has grown exponentially in the recent past. But even its approach to court work was partial (Llewellyn, 1935, p. 675; Pound, 1939, p. 26), premised on the paper rules of casebooks (law in books) rather than actual court practice (law in action). Frank made this point very well when he suggested:

"If it were not for a tradition which blinds us, would we not consider it ridiculous that, with litigation laboratories [courts] just around the corner, law schools confine their students to what they can learn about litigation on books? What would we say of a medical school where students were taught surgery solely from the printed page? No one, if he could do otherwise, would teach the art of playing golf by having the teacher talk about golf to the prospective player and having the latter read a book relating to the subject. The same holds for toe-dancing, swimming, automobile driving, hair-cutting, or cooking wild ducks. Is legal practice more simple? Why should law teachers and their students be more hampered than golf teachers and their students? Who would learn golf from a golf instructor, contenting himself with sitting in the locker-room analysing newspaper accounts of important golf-matches that had been played by someone else several years before?...As a result of present teaching methods, law students are like future horticulturists who restrict their studies to cut flowers. They are like prospective dog breeders who never see anything but stuffed dogs" (1947, pp. 1311-1313).

But even if we ignore the distinction between law in books and law in action, his introduction of the casebook as the standard teaching aid can also be criticised for narrowing the reading horizons of law students. It also ensured that legal academics engaged their energies in largely unoriginal casebook research work, tracing the celestial lines of development of various legal rules emanating from upper-court decisions, but never engaging in broader discursive analysis of the working of rules, the ideological, economic and socio-political currents running through them (Cohen, 1935, p. 833), the dynamics of how they change, and the policy and contextual implications for choosing one rule over another (Lasswell and McDougal, 1943, p. 203). The narrowness of his approach to legal education seemed ill-fitted for university life which was meant to stir the creative and critical emotions in students in a 'House of Intellect' type environment (Twining, 1995, p. 293; Kahn Freund, 1966, p. 128). Can Langdellian law really be considered a university discipline if law students are not required to engage with the political, ethical and social consequences of the practice of law? As Griswold (1967, pp. 300-301) asked about law teachers: *"We encourage imagination – in small ways, and perhaps in analogical reasoning. But do we encourage imagination in the broad sense? Do we encourage our students to devise new premises, to start out on whole new lines of reasoning, to come up with new solutions?"* Finally, the case method also ensured that whilst learning was participative, it was hardly student focused. Its central axis point was the authoritarian law lecturer, who dictated the flow of questions before a large student audience (Feldman and Feinman, 1984, p. 930).

Many commentators would also argue that the formalism advocated by Langdell was essentially conservative in nature, designed to preserve economic and political power in the hands of the wealthy and powerful. His approach to teaching law served to provide a cloak of legitimacy for the underlying structural inequalities of power which are imbricated in the cross-currents of society. It also helped inculcate a set of attitudes towards the legal system in society, exhorting in particular its legitimacy on the basis of its 'bloodless', apolitical and neutral nature (Lapiana, 1999, p. 143; Banks, 1999, p. 456). But this ideology of objectivity, egalitarianism and the strict application of rules masked and mystified law's partiality, particularly its capacity to preserve and maintain the status

quo for those in power (Horowitz, 1992, pp. 253-254). In other words, although law, as part of an overall ideological hegemony, will serve the interests and values of the powerful, it is packaged as if it is value free.

Hiding behind the 'false consciousness' of Langdellianism (Freeman, 1981) - and the search for *a priori* principles that could be deductively applied to facts - *"was a small set of operative first principles that were deployed to uphold the political imperatives of individualism an adamant support of the most conservative interpretation of individual rights embodied in the Constitution; a preference for common law precedents over novel social legislation; an anti-majoritarian bias stemming from the conception of the individual as occupying a sphere of absolute rights broaching no encroachment; a preference for the continuity of traditional customs over the uncertainties of social progress; and a bias in favour of the interests of the privileged classes over the clamouring agitations of the oppressed"* (Goetsch, 1980, p. 231). This also had implications for legal education, particularly through the way in which teachers (unconsciously) mystify legal reasoning, thus serving a variety of hierarchical interests. As Kennedy notes, *"bias arises because law school teaching makes the choice of hierarchy and domination, which is implicit in the adoption of the rules of property, contract, and tort, look as though it flows from and is required by legal reasoning rather than being a matter of politics and economics"* (1982, pp. 40-61). Finally, formalism also has implications for legal practice, particularly the notion that what lawyers actually do is apolitical and independent, merely following the inner technical logic of the law. This might be reassuring, but it is a denial of the political and social realities of legal practice (Hutchinson, 1999, pp. 307-308).

The major consequences of this Langdellian/formalist approach to legal education was that *learning was not integrated* into the realities of legal practice. It was not integrated because it did not examine:

- The psychological or sociological ways in which facts were constructed;
- The social, cultural, political, or economic environments in which decisions were made;
- The moral or ethical contexts in which decisions were made;
- The psychological dimensions of decision-making;
- The texture of language that often gives rise to a number of legitimate interpretive choices;
- How the law operates in practice;
- The political and social realities of legal practice.

FRAMING THE QUESTION

Over the past three decades attempts have been made to make legal education more inclusionary and integrative, to incorporate a greater variety of learning materials and to offer students more opportunity for critical engagement with the subject matter (Thomas 2006, pp. 239-253). These attempts include much greater interdisciplinarity (law and history; law and economics; law and literature; law and sociology; law and politics); greater use of clinical legal education (as we shall see); an increased willingness to engage with theory (for example, Feminism, critical race theory, etc.); a greater emphasis on legal writing; an increased willingness to view law from the perspective of different groups (employees, women, persons with a disability, gay and lesbian communities, etc.); the incorporation of policy perspectives designed to facilitate democratic change in society; the increased use of information technology and computers which moves lecturer-student interaction beyond

the lecture room (the use of blackboard, for example); the massive expansion in access to legal information (i.e Westlaw, Lexis, Bailii) which moves the student learning experience far beyond the traditional casebook; an increased willingness to incorporate legal ethics into the curriculum; and an increased emphasis on student learning and student understanding. All of these streams are flowing in a different direction to that signposted by Langdellianism/formalism.

LEARNING JOURNALS AS A MEANS OF PEDAGOGY AND ASSESSMENT

In this essay, I want to look at one dimension to this more integrative approach to legal education: the use of learning journals on an LL.M (Master of Laws) programme in Criminal Justice in the Faculty of Law at University College Cork (UCC). In particular, I would like to determine how learning journals facilitate integrative learning through assessment and pedagogy. A Learning Journal is a collection of reflective comments concerning educational and practice activities or events. It could contain an entry for each class, meeting, discussion or workshop that you participate in and regard as relevant to a student's learning plan. Journals are used to stimulate critical thinking, providing insights into knowledge at the higher levels of learning involving analysis, synthesis, integration and evaluation of information. Journals also encourage students to make their learning personal by thinking about and articulating their thoughts (Moon, 1999). They will also focus attention on student values, attitudes and beliefs and help them make them explicit what they might previously have been implicit and unexamined. Journals give students the opportunity to reflect on learning, to take ownership of learning, and to become more *"self-aware, self-directed learners"* (Loacker, 2002, quoted in Huber and Hutchings, 2009, p. 10)

LL.M IN CRIMINAL JUSTICE

The LL.M. in Criminal Justice is integrative and unique in its own right because, as its promotion material on our website recognises, *"it provides a core clinical component, which offers students the opportunity to pursue a theoretical inquiry into criminal justice while experiencing the reality of the criminal justice system in practice"*. UCC's Faculty of Law has developed a well-established network of relationships with various criminal justice agencies. A clinical coordinator in the Faculty of Law organises a series of placements in partnership with these agencies. These placements enable students to explore the perspectives of An Garda Síochána (the Irish police), victim organisations, probation service, prisons and the courts (judiciary, prosecutors and defence). This partnership between academia and the broader community offers an unrivalled opportunity for research into criminal justice theory and the divergence between policy and the reality of the implementation of criminal law on the ground.

In order to encourage integration of learning, applications are accepted and encouraged from professionals (even if they do not have a law degree qualification, a requirement for all other LL.M. programmes) working within the criminal justice system, including solicitors, barristers, members of An Garda Síochána, the Prison Service and the Probation Service. Students taking this specialised degree must complete a thesis (12,500 words excluding reasonable footnotes) in the area of Criminal Justice. They must take the following two units:

LAW 535 Law, Policy and Methodology (one unit)

LAW 519 Criminal Justice (Clinical programme) (two units)

Students can then take four units drawn from the following:

LAW 525 Terrorism, Dissonance and Criminal Justice (one unit)

LAW 530 Contemporary Issues in Irish Constitutional Law (one unit)

LAW 554 Criminology (one unit)
LAW 551 Immigration and Refugee Law (one unit)
LAW 550 International Criminal Law (one unit)
LAW 546 Juvenile Justice (one unit)
LAW 545 Penology (one unit)
LAW 560 Cybercrime (one unit)
LAW 556 International Humanitarian Law (one unit)
LAW 558 Mental Health Law (one unit).

The clinical aspect of the course (LAW 519) is very innovative in Ireland. Such clinical programmes are common elsewhere, particularly in North America, where many focus on the criminal process. Some of the most notable include Osgoode Hall, Harvard and Cardozo Law Schools. The rationale of the course is to bridge the gap in traditional legal education between the theory and the practice of law. To this end, in addition to the study of the theory of the criminal process, there are placement components, which give the student the opportunity to examine how the criminal process operates in the 'real world'.

Students on this course are placed with the courts, members of the legal profession, victim service providers, the police, the prison service and the probation service to see how perspectives other than the academic or legal view the criminal justice system. Students attend the Circuit Court criminal sessions for a period of three weeks as well as visiting the District Court, the Children's Court and the Central Criminal Court; they are also given the rare opportunity to visit Cork Prison, Mountjoy Prison, St. Patrick's Institution and the Central Mental Hospital. The course is now seven years old as part of a specialised LL.M. in Criminal Justice.

The LL.M. (Criminal Justice) (Clinical) does not operate from a clinic base, and therefore chiefly relies on observational exercises together with the simulation exercises referred to above which satisfy the requirement of 'realism'. In addition, students, where possible, conduct live interviews with counsellors and volunteers working at the Sexual Violence Centre Cork (formerly the Rape Crisis Centre), members of An Garda Síochána, probation officers and prison staff, so as to gain an insight into the perspectives of all those involved in the criminal process. Throughout their placements students maintain a 'learning journal' in which they keep detailed records of court proceedings and note points of interest and impressions from the various placements that are part of the course. The learning journal is periodically inspected by the clinical coordinator (currently Ms Dorothy Appelbe) as well as the external examiner at the end of the year. A mark is awarded out of sixty for the learning journal which accounts for 30% of the total marks available for the Advanced Criminal Process (Clinical Programme) (two units). The following information is provided to the students in their student manual:

Students must keep a learning journal as part of this course. A learning journal is a securely bound A4 hardback manuscript (preferably typed) as well as media reports which you have collected that reflect the matters encountered and discussed as part of this course...

Reflection is a continuous theme of any clinical law programme. This Clinical Programme as part of the LL.M. (Criminal Justice) (Clinical) provides ample opportunity for students to discuss their experiences of the criminal justice system encountered on this course. The weekly seminars are an obvious focal point for students to share their experiences with fellow students. Traditionally students on this programme also engage in informal reflection with each other. A Learning Journal is evidence of students' reflection.

Since reflective learning may not be a concept students have encountered as part of their undergraduate education, most students initially find reflective learning a challenge! Reflective learning takes time to get used to. Most students appreciate the value of reflective learning if they enter into it in the right spirit.

The learning journal should amount to a complete record of your experiences of the clinical programme. It should contain an account of the date, time and location of the placement/seminar, those persons you spoke to, what was discussed, any questions you or another student asked and the answers provided. However, your journal entries should aim to go beyond merely documenting the experience. Your reflective journal should also be an account of your general impressions of the placement/seminar. These impressions should include your own views, both intellectual and emotional, of the surroundings, the persons encountered and the matters discussed etc. A first class journal will also aim to evaluate what was observed in context e.g. the implications of the exclusion of certain persons/sections of society from jury service, or the reasons behind media coverage of a particular case/story.

Your Learning Journal is not something you can put on the 'long finger', to compile at the end of the year. Learning journals will be inspected regularly throughout the course and students may be asked to submit preliminary reflections on various aspects of the clinical programme on a continuous basis for which feedback will be provided.

In the context of the aforementioned, my question is this:

Learning journals are relatively novel in law. To what extent do they facilitate integrative learning both in terms of pedagogy and assessment? I believe that I am well placed to carry out the examination given that I lecture two of the more theoretical modules on the programme - criminology and penology.

GATHERING THE EVIDENCE

Thirty students (each allocated a number between one and thirty) in the academic year 2007/2008 completed Law 519. I wrote to all of them on the 20 September 2008, requesting their permission to use their journals in my research project. All granted permission. The next task was to go through each of the 20,000 word learning journals to demonstrate how integrative learning took place (and the standards that were attained) among the students. I completed the entire 600,000 review in June 2009, and highlighted the various relevant threads that emerged from the review of the journals.

EMERGENT FINDINGS AND BROADER SIGNIFICANCE

As a result of the clinical programme, it is clear that students are stepping beyond the boundaries of doctrinal legal rationality. Their experiences on the programme made all of them aware that law is a product of social relations; that its inner logic, though very relevant, does not reveal its true nature, particularly how it operates in practice; and of the psychological and sociological factors underpinning decision making, and the social realities of people's lives and how the criminal law affects them. In the section that follows, it is readily apparent that learning journals facilitate integrative learning both in terms of pedagogy and assessment. Learning journals have played a crucial role in acting as a conductor for the integrative learning experience of students on the clinical programme. I have grouped these learning experiences into various categories:

- The roles played by various parties in criminal law particularly prosecuting counsel, the judge, the jury, prosecution witnesses, and the process of examination in chief and cross-examination, and how a narrative is built;
- The social realities of crime;
- The dynamic of the courtroom (particularly the frequent level of disorder in the courtroom);
- The type of individuals to whom the criminal law applies (is there a pattern – young, male, deprived background, lack of education, etc.);
- The interpretation of rules in practice;
- Role play and how decisions are reached in practice;
- Student observations on the workings of the system.

(i) The Roles Played: Law in Action

The employment of learning journals on the clinical LL.M. programme allowed students to demonstrate their knowledge of the various roles that different actors play in the criminal justice system. This is a key outcome sought in the clinical programme, opening up the law in action as opposed to law in books. As evidence of this, on the 8 November 2007, student 1 observed the case of *DPP v Ian Horgan*, and became very conscious of the different roles played in the criminal trial, particularly: prosecuting counsel, the judge, the jury, prosecution witnesses, and the process of examination in chief, and how a narrative is built. All of this understanding was recorded in the student's learning journal.

After a Garda ride along on the 9 February 2008, student 4 noted:

"I was amazed at how different and difficult the job of the Gardaí actually is... I now appreciate more the difficult circumstances in which they must carry out this job".

(ii) The Types of Crime

One of the key difficulties with a formal legal education is that whilst students learn legal rules about various crimes (the *actus reus*, *mens rea* requirements, defences, evidential rules, due process rights, maximum punishments), they develop little or no knowledge about the social realities that hide behind these rules. What is the prevalence of crime? What offences repeatedly appear before the courts? What types of factors are at play? The clinical programme allows us to integrate this knowledge into their understanding and the learning journals helped us record that understanding.

Student 12, for example, noted: *“one could not fail to notice the issue of drugs either. Over half the cases we heard were drug related ...”*

Student 17, following his Garda ride along, noted in his or her learning journal that the Garda in Cork city get five to six calls a night relating to incidents of domestic violence, but they find that a lot of the calls are bogus, *“many involving alcohol”* (p. 59).

Having visited the District Court in Cork, student 21 noted the following:

“For me, it was interesting to note that the majority of the cases were for public order offences. The majority of individuals had come to court because they were drunk and or intoxicated in a public place...Throughout my visits to the District Court, it became evident that the type of sentence that an individual would receive was more [sic] dependent on his or her prior history. Did he or she have any previous run-in with the law?”

The issue of alcohol is an interesting one. Up to this point the only formal understanding that students had of alcoholism and its relationship with crime related to the defence of intoxication and the circumstances when it applied. There are only four or five relevant cases on this issue. Yet these clinical experiences helped them understand that whilst the defence of alcoholism was relatively rarely used, the issue of drunkenness as a causal factor in crime was much more prevalent.

(iii) The Architecture

Most students have little or no understanding of the dynamics of a courtroom. The neat ‘paper-logic’ of the rules they have learned gives the impression of a coherent, ordered dynamic in the courtroom. Yet this is not always the case. The learning journals helped students reflect on the disorder that sometimes occurs.

In the Hogan case in the Circuit Court on the 5 November, 2007, student 3 noted *“that it was hard for the [jury] to see the witnesses on the witness stand”*. Moreover, the student in his or her learning journal also noted that *“there was no particular place for the accused to be situated”* (at p. 19).

(iv) The Criminals and Their Lives

When law students learn legal rules in a lecture hall, implicitly they are being informed that law follows a logic of universal individualism (that we have can make rational choices). Everyone is the same before the law, enters into the ‘social contract’ in the same way, and is treated in the same way. The world of rulebook law, therefore, is an asocial one that does not accommodate the individuality of human beings. This is a mistake because many commentators would argue that in areas such as criminal law this logic of universal individualism has the potential to produce unfair results. For example, it treats individuals from socially marginalised backgrounds – with histories of school failure, dysfunctional families, drug abuse, unemployment, and poor housing – in exactly the same way as individuals from more affluent backgrounds. This may result in an over-representation of those from poorer backgrounds in our criminal justice system. As Foucault noted:

Visit the places where people are judged, imprisoned or executed...One thing will strike you everywhere; everywhere you will see two quite distinct classes of men, one of which always meets on the seats of accusers and judges, the other on the benches of the accused, which is explained by the fact that the latter, for lack of resources and education, do not know how to remain within the limits of legal probity...Law and justice do not hesitate to proclaim their necessary class dissymmetry (1991, p. 276).

Similar arguments have been made in Ireland. Bacik *et al* (1997), for example, noted:

The abstract individual defendant is at the core of criminal law doctrine, presented as a rational actor, isolated from the social context within which human behaviour occurs, and lacking any distinctive or defining characteristics. However, it is well established that those individuals who come into contact with the criminal justice system as defendants are not representative of the population at large. Indeed, as a group of defendants, they can be said to share certain defining characteristics: they tend to be disproportionately young, male and working class.

It was hoped that through the clinical programme the students would become more aware of the social realities underpinning crime. Through the learning journals this was demonstrated in a number of instances. Student 1, for example, after a visit to Cork Prison, noted:

"[The prison officer] confirmed that, as per anecdotal evidence, the majority of the prisoners incarcerated in Cork come from a handful of addresses. He stated that there are also a numerous incidences of multi-generational incarceration with one family having seven sons, their father and their uncle imprisoned at the same time".

Student 2 had a similar response following a visit to Cork District Court in October 2007:

"I felt I was witnessing the weakest and the most vulnerable in our society trying to answer the 'How', the 'Where', the 'When' but above all the 'Why' of what they did. Some arrogant, full of bravado, but possibly internally crying to be so different, to be decent and happy, some out of need to feed themselves or their children or a sick family member, Some out of greed possibly created out of jealousy...Some not knowing why, through lack of mental ability...The point of all this is that I wonder how many of the accused do what they do out of pure badness?" (p. 6).

Student 12, after a visit to Cork prison, noted the following:

"I was most surprised by the relative freedom of the prisoners to move around inside the prison...The friendly greetings interchanged between staff members and inmates also impressed me...Prison has perhaps become a method for controlling the lower classes by taking them 'out of circulation' for a period and permanently handicapping them with a prison record for the remainder of their days" (p. 10).

Student 15, after visiting Cloverhill Courthouse to observe applications for bail, noted:

"The majority of applicants came from marginalised backgrounds and suffered social deprivation. I was shocked by the amount of previous convictions the applicants had...A myriad of applicants suffered from drug addiction..."

(v) The Rules

The learning journals also enabled students to document circumstances where they encountered legal rules being interpreted and applied in courts. Student 1, on the 12 November 2007, observed a discussion in Court Two in Cork Circuit Court on the issue of accomplice testimony. A state witness had been arrested as part of the alleged crime and the question at issue was whether that made her an accomplice and the consequences of that label. Student 3, having observed a case, discussed the informal method of identification used for singling out the accused. The student went on to note:

"At the time of this case, I was taking a class in terrorism, dissonance and Criminal Justice'. ...[We] looked at the issue of miscarriage of justice cases where Garda or police evidence which was not completely reliable or properly obtained was allowed, resulting in a conviction...Cases where the judges allowed evidence which was improperly obtained also had the qualities of a crime control model that Packer wrote about in the 1960s" (p. 23).

On the same case, student 22 noted:

"What I found interesting was how the case fell apart not because of any argument that [the witness] had identified the wrong man but rather because strict procedure was not rigidly adhered to by the police in their investigation. In Herbert Packer's seminal article on the two models of the criminal process, he posited that "if the crime control model is like an assembly line, then the due process model is an obstacle course'. In penology, we studied David Garland's thesis that contemporary western society is undergoing a shift from the traditional due process model to a more control orientated system of justice. This case seems to show that at least in Cork's Circuit Court due process values are still alive and well".

Student 7 gained a lot from the lecture given on forensic evidence by Dr Smith from the Forensic Science laboratory. The student felt that we needed a proper DNA database to take full advantage of the power of science (p. 57).

Student 14 discussed at length the issue of visual identification evidence as a result of one of the cases she observed, and in particular the failure of a Garda to observe the strict guidelines that govern identification parades (p. 120).

Student 24 felt that the lecture given by Mr Justice Paul Carney related well to what he had learnt in relation to the law on sentencing: *"I found the citations he used in relation to punishment interesting particular in relation to punishing the offender and not the offence and it being about rehabilitation"* (at p. 47).

(vi) Role Play

The students were also required to act as a shadow jury in real cases. Again, in learning legal rules, they would not be familiar with the psychology of decision-making, which is far more complex than the simple syllogistic application of law to facts. Having observed a case, a group from the class undertook a shadow jury exercise, student 1 observed the group dynamic, particularly the emphasis of previous bad character evidence, and inferences from inaction on the part of the defence.

Student 9 also enjoyed the exercise believing it *"was an opportunity to see what a real jury goes through when trying to come to a verdict"*. The student also commented on the fact that *"after much deliberation we ultimately came to the same decision as the real jury"* (p. 29). In particular he noted:

"The first thing that happened in our jury room was someone posed the question of whether or not we believed the accused was guilty. Unknown to ourselves we had taken a vote before going through any of the evidence or directions from the judge...It became evident that three people were leading the discussion with the other five taking a back seat. This happens in actual juries also...Obviously having two or three jurors doing most of the talking is not ideal as their views may carry more weight than they should" (pp. 29-30).

(vii) Criticisms

The learning journals also helped students express their opinions on various policing, judicial and lawyer practices that they observed on the clinical programme. Many of these observations arose out of the vagaries of the situation; it had not been contemplated by the programme directors. Student 1, for example, in hearing a defence counsel address the issue of the role of the trial judge to the jury and likening it to papal infallibility (*"the learned trial judge is in the position of a pope"*) asked: *"this supposes that the jury are a homogenous group of devout Catholics which of itself confines the demographics of the jury selection"* (p. 30)

Student 6, after one visit to Cork District Court, observed an individual who was arrested for being drunk in a public place under Section Four of the Criminal Justice (Public Order) Act 1994. The student noted:

"This is a case I personally feel should never have been brought to court at all and is a classic example of what the adult caution system was introduced to encapsulate. The man was not abusive to Gardaí, was not violent, apologised and expressed remorse for his actions yet still ended up in court and nearly left with a criminal conviction. I felt that the discretion which is extended to the Gardaí was not utilised in this situation ... I felt saddened to be witnessing a case where the criminal justice system operated in such an unfair manner".

Student 1 noted that there was an assumption made about a prisoner that he was illiterate: *"I had a difficulty with this... he had to correct her and tell her that he was capable of doing this himself. Whilst I accept that there is a major problem with literacy in prisons the default setting should not presume that the prisoner is illiterate until told otherwise"* (p. 57).

Student 9, after observing a case in the Circuit Criminal Court felt that it took the judge too long to go through his directions: *"it appeared as though the jury were not listening too intently and none of them were taking notes. Of course the judge must give an accurate picture of all the evidence but it is possible to be much briefer as other judges generally are"* (at p. 27).

But students were not always integrating theoretical and clinical knowledge

The learning journals also reveal the extent to which curricular fragmentation is occurring. Some of the observations made by students in the journals should have been connected with theoretical learning that took place in class. For example, student 5, during his Garda ride along on 1 February 2008, was taken to the surveillance room at Anglesea Garda station in Cork. He noted:

"The cameras are of a very high quality and produce very clear pictures. The Garda in the room demonstrated this by zooming in on a car registration plate and by zooming in on two young men walking down the street who did not realise that we were watching them".

Given this opportunity, it was surprising that the student did not attempt to frame the debate in more theoretical terms, in particular the drift towards the use of low visibility, high transferability, involuntary techniques of surveillance. These surveillance techniques operate across public and private domains. Student 23, after visiting Cork District Court, noted:

"From the litany of cases we witnessed it is obvious that many of these offenders are lower socio-economic members of society who do not really care less that they are wasting the Garda Síochána's time by committing petty crimes on an on-going basis. Many are from broken homes, are single parents and substance abusers and the patterns in court seem to endlessly repeat themselves and only highlight what happens out on the streets day in, day out".

Similarly student 25, after a visit to Cloverhill District Court, noted the following:

"I found Cloverhill to be a very interesting placement. It was interesting to see that a large number of the applicants being processed were mostly young males with very similar lifestyles...young, no jobs, children and drug problems. I found it interesting that some of the applicants who had a history of absconding were still granted bail".

Student 8, after a visit to the old Cork gaol on the 31 October 2008, noted (at p. 58):

"In our visit to the prison we learned about the hardship that the prisoners suffered on a daily basis. The food they ate was of a terribly low standard and they rarely got to leave their cells. The punishments were very severe when you consider the crimes that some of them committed. A woman got five years imprisonment for stealing a small piece of cloth at the market and it is wondered whether the same would happen to a member of the aristocracy. ...There was wax exhibit of a young boy being whipped... for stealing a piece of bread. These were hard times where hard labour and solitary confinement in the dungeons were the norm...From my own perspective a visit to this prison highlighted just how far this country has come in terms of humanity and how we must never revisit those dark days".

Again, one would have expected such an excellent observations to be connected back to what was learnt in criminology lectures. This would have explained *how* market societies have the potential to promote crime by increasing inequality and concentrated economic deprivation.

Student 10, involved in a discussion group with Judge Con O'Leary, was asked why juveniles got involved in crime: *"He [the judge] offered the opinion that maybe they could not respond to the process of change and this led them to fall into the criminal net"* (at p. 63). This is an excellent example of control theory in criminology, which attributes juvenile crime to a loss of social control normally imposed through social institutions such as the family, faith, education, and the community or one's neighborhood. If such informal social control is weakened, formal means of social control may be imposed via the juvenile and adult criminal justice systems. The student, however, never attempted to frame the judge's observations within an overarching theoretical model as to why juveniles commit crime (and the extent to which this model can be contested).

Student 11, after a group discussion with a prosecution counsel, noted:

"[The prosecution counsel] told us that he personally believes that the only way to improve the problems surrounding drug abuse in Ireland is to legalise all drugs. He stated that it would then be up to individuals to become registered in order to obtain their fix. He stated that this might operate to curb casual drug-use because people might be afraid of becoming registered in case it appeared on their medical records" (p. 208).

One would have expected these observations to be framed within the labelling school of criminology which argues that crime and deviance are not pre-given, objective categories, but negotiable statuses. It is a mistake to see deviance simply as the 'infraction of some agreed rule because it ignores the fact that what counts as deviance is largely a function of the ability of groups with political power to impose their concept of right and wrong on the behaviour of other groups'.

Student 16 raised the issue of inconsistencies in the sentencing practices of judges, particularly in relation to the possession of drugs (p. 16). This is an excellent observation but the student did not connect this observation back to critical criminal law which suggests that the coherency and determinacy of criminal legal reasoning is a myth. This, it is argued, is particularly true of sentencing.

CONDITIONS FOR DOING THE SCHOLARSHIP OF TEACHING AND LEARNING

It was very easy to undertake this research. I was given excellent support from the clinical coordinator of the programme, Dorothy Appelbe, who provided me with all of the learning journals. My former head of department, Professor Caroline Fennell, who set up the programme, was very supportive in that she gave me permission to undertake the study. The students also were very helpful, all granting me permission to trawl through their journals looking for strengths and weakness. My colleagues on the NAIRTL project were always positive. Their enthusiasm gave me the momentum to complete the project. I am very grateful to all of these parties for helping me undertake this work.

BENEFITS OF THE WORK

It is well documented that students' learning has become too fragmented, promoting specialised understanding within very narrow boundaries (Huber, 2005, p. 4). Students accordingly do not 'necessarily have integrative experiences' (Thompson Klein, 2005, p. 9). The clinical programme at UCC attempts in part to address this by helping the students to observe 'law in action'. As part of this drive to get beyond doctrinal legal rationality and fragmented modular choices, the learning journals employed on the programme acted as a very suitable mechanism for assessing the extent to which students connect learning across multiple fields including undergraduate doctrinal law modules, postgraduate theoretical law modules, and clinical education. It was also found that learning journals act as an excellent pedagogical tool in enabling students to draw upon their multiple learning experiences, and link them in concrete, though complex, work situations. All of the above examples demonstrate how this has taken place.

The architecture of assessment and pedagogy needs, however, to become more refined, more explicit, drawing upon the entire teaching programme. At present the learning journals are the responsibility of one member of staff and there is no input from other lecturers working on the programme. It is submitted that in order for learning journals to achieve their maximum effect, there needs to be more proactive attention to integration and synthesis at both a pedagogical and assessment levels. It is difficult to assess whether students are making consistent insightful connections between academic courses and observed clinical experiences unless a system is devised that incorporates all lecturers on a course into the assessment of those journals. Similarly, a pedagogical framework needs to be established around the portfolio that again involves all lectures on the course (having regard to the academic courses they teach, what integrative outcomes would they expect for students having regard to particular clinical experiences, what links would they expect them to make between their individual courses and the clinical experiences in question).

Both in terms of pedagogy and assessment, the use of learning journals needs to be planned among all staff on the programme. This can impose a heavily logistical load (particularly in an academic environment where we are used to limited surveillance vis-à-vis our own modules) requiring constant tacking back and forth between where students are in respective academic modules and where they are at in terms of their clinical experiences. Increasing we hear about *learning communities*; but we also need to develop *teaching communities* to foster and facilitate more intentional integrative learning experiences. It is not just a question of modular fragmentation; it is also a question of a disconnection among academic staff, due mainly to tradition where the degree of collaboration is minimal. The learning journal on a Masters programme like the one I am involved in needs to be managed by the entire teaching community on the programme to optimise pedagogical and assessment outcomes.

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BEYOND WIKIPEDIA AND GOOGLE: WEB-BASED LITERACIES AND STUDENT LEARNING

James G. R. Cronin

INTRODUCTION

In April 2009, the *Shock of the Old* symposium on digital literacy hosted by Oxford University Computing at the Saïd Business School in Oxford, engaged in teasing out current understandings of the term “digital media literacy” and user experiences using the Educause *Horizon Report* as a departure point (Johnson, Levine and Smith, 2009). Educause is a nonprofit association whose mission is to advance higher education by promoting the intelligent use of information technology. In forecasting future trends, the report identifies a need to formally teach information literacy, visual literacy and technological literacy in order to equip students for the demands of a sophisticated global techno-culture. The symposium concluded with a fundamental question: how can information professionals and academics promote understandings of new literacy behaviours both within and across disciplines? What follows here is an attempt to tease out some of the issues arising from putting this pertinent, yet provocative, question into action.

Characteristically, new technologies always emerge within the context of established technologies; the new is also quickly embedded into patterns of everyday life as these technologies become enfolded within a wider semiotic field of human communication (Crispin and Jaworski, in-press). Educators may broadly agree that Information and Media Literacy (IML) should be included as a set of competencies within curricula; however, current opinion on how best to enact this is divided. Some argue that new literacy skills need to engage with critical thinking across disciplines, as articulated through the concept of ‘transliteracy’ others argue that enactments should be disciplinary specific. Educational institutions are struggling to keep pace with the implication of technological change for literacy behaviours and are beginning consider a need to reinvigorate their roles as educators in critical awareness for a current generation where the fifteen to twenty-five year old age-group strongly relies on peer-to-peer collaboration, drawing on collective knowledge of social networks and evaluate information strategically, but not necessarily critically.

The proliferation of unmediated information construction and access through new media is challenging the hegemony of educational institutions. This study surveys, on a micro level, challenges to institutional collaboration for embedding IML workshops within the humanities. These sessions, run in partnership with librarians in the Boole Library, University College Cork, were dedicated to the critical understanding of the Web for the disciplinary study of art history. In Ireland, it is often assumed that students are completely Web literate by the time they enter third-level education. Broadly speaking, this assumption is tacitly accepted and generally goes unchallenged (Cronin, 2009; Cronin, McMahon and Waldron, 2009).

This chapter is presented in sections. Section two explains the method and approach adopted for this case study within the context of the Irish Integrative Learning Project. Section three explores frameworks supporting a critical engagement with media literacy within the context of the role of information authorship which implies awareness of discursive traditions, information transmission and knowledge transformation. Section four offers a reassessment of the role higher education provides in mentoring the facilitation of media literacy competencies. The case study, in section five, examines skill-sets and institutional dynamics involved in establishing and embedding media literacy programmes. Section six explores these dynamics at a disciplinary level. Section seven surveys the user experience of a dyslexic student as a way of illustrating how media workshops can enhance disciplinary understanding and can potentially scaffold learning for non-traditional learners. Section eight concludes by acknowledging a need for educators to act as mentors in the process of

facilitating the multiple skill-sets, identified in the Scholarship of Teaching and Learning, as requirements of being fully literate in the early twenty first century.

RESEARCH METHODS

Mindful of the focus of the Irish Integrative Learning Project (Higgs, Ryan and Kilcommins, 2009), this case study aims to investigate and document how new Web-based literacies enhance student learning. This study focuses on the enactment of a series of information literacy workshops over a two-year period (October 2007 to October 2009). Longitudinal analysis is the study of short series of observations obtained from many respondents over time. From January 2009, the weekly workshops were opened to undergraduates and postgraduates and included students from History as History of Art within the School of History at University College Cork. A trace of topics covered is archived on a blog e-image space (<http://eimagespace.blogspot.com/>).

In aligning with practitioner enquiry and adopting a critical theory approach, this study recognises that knowledge is personally and socially constructed and mediated. Practitioner enquiry is characterised by practice change through action-research. Action-research is a form of problem-solving based on increasing knowledge through observation and reflection, then following this with a deliberate intervention intended to improve practice (O'Hanlon, 2003). Cases are "*conduits between theory and practice*" (Shulman, 2004, pp. 26-30). A case study method was chosen, focused through action-research, but modified by a conceptual lens drawn from critical theory and set within an overarching practitioner enquiry frame. Compared with other methods, the strength of the case study approach is an ability to examine a case within its 'real-life' context. The case study approach has the advantage of direct observation and data collecting in natural settings compared to relying on derived data. Mixing or integrating research strategies (qualitative and/or quantitative) is now considered a common feature of all good research. It is suggested to array data separately from the narration, but analysis can be carried out throughout the case study (Yin, 2006). Interrogating practice often reveals specific ethical dilemmas (Lyons and Kubler LaBoskey, 2002). Privacy, confidentiality and the preservation of the security of the group exchange are general ethical concerns (Lyons and Kubler LaBoskey, 2002; O'Hanlon, 2003; Strike, 2006). It is recommended that data be presented anonymously to protect the privacy of individuals (Strike, 2006). The project team functioned as project advocates by acting as critical friends to the study. A 'critical friend' has been defined as a trusted person who asks provocative questions, provides data to be examined through another lens, and offers critiques of a person's work in a spirit of friendship (Costa and Kallick, 1993). This form of advocacy became, in turn, a catalyst helping to define research questions and to test observations within the case study.

MORE INFORMATION, LESS MEANING

Over a decade before the Internet came into being Jean Baudrillard wrote: "*we live in a world where there is more and more information and less and less meaning*" (Baudrillard, 1994, p. 79). Established literacy behaviours are changing, and online reading experiences do not map exactly onto established literacy patterns. In the West reading patterns, established since the invention of printing in the fifteenth-century, emphasise the importance of close reading consisting of textual comprehension, and critical reflection often involving re-reading the text. Reading is often a slow, single-attention, solitary act. Reading on the Internet, however, places emphasis on searching, scanning, jumping, and filtering information. Internet reading is often a fast, multi-attention, communal act as evidenced in the proliferation of blogs, twitters, and online wikis.

With the impact of globalisation, the academy is no longer the sole agent of knowledge construction and custodianship. As Gerard Delanty writes: “*knowledge is losing its ability to provide a sense of direction for society and is breaking up into specialist discourses that arise in the context of application*” (2001, p. 106). The ‘information bomb’, a term apparently coined by Albert Einstein, represented by relentless information acceleration, as envisaged by Paul Virilio (2000, 2002) has exploded and we are living through, to paraphrase Virilio, ‘information fallout’. How does this effect knowledge construction and ways of knowing? As information consumers, we are all centre-points in a knowledge ‘rhizome’, a communication node characterised by collective and individual information consumption. Similar to Virilio, Giles Deleuze is read as a philosopher of the virtual (Žižek, 2004). Reading the rhizome as metaphor for unmediated knowledge, adapted from Deleuze and Guattari (1987), David Cromier’s perception of new communities of knowledge is utopian. He sees the rhizomatic education model, exemplified by educational wikis, as a potentially democratic exchange site allowing for the construction and transfer of utilitarian knowledge (Cromier, 2008). Tools like Wikitrust (<http://trust.cse.ucsc.edu/>) still use the community to authenticate and validate content. Steve Wheeler interprets Cormier’s application of the rhizome metaphor as exemplifying recent understandings of the process of learning (Wheeler, 2009). Recent research in the field of neuroscience supports learner-centred approaches in education by proposing that the brain’s nerve cells (neurons) are loose, flexible and overlapping and woven like an interconnected web (Kringelbach, Vuust and Geake, 2008). In addition, Wheeler applies the rhizome metaphor to explain current shifts away from the generic institutionally led Virtual Learning Environments (VLE) in higher education and towards an adoption of individually constructed Personal Learning Environments (PLE) or collaborative social networks that can cross institutional boundaries and connect to a network of resources within a personally-managed space. Current opinion is divided on how best to engage with this phenomenon. Should these online communities grow organically and regulate themselves or should educators intervene and adopt a pastoral role? This is particularly relevant for ethical and legal issues such as the representation of the online social self. The speed and proliferation of media has not kept pace with corresponding critical reviews. Facebook, the social networking site, reputedly founded by Mark Zuckerberg in his Harvard dorm, dominated international news in 2010. In spring, the site’s privacy policy prompted media debate while online identity was the subject of international media attention during July when the site reached 500 million active users thereby making the Facebook population equivalent to the third-biggest country on Earth.

‘THE TOWER AND THE CLOUD’: EDUCATION AND SOCIETY

The social networking characteristics of Web 2.0 have broken down barriers between expert and lay knowledge. In the context of an evolving semantic web of collective information exchange, educational and cultural memory institutions are no longer sole generators and disseminators of knowledge (Terras, 2008). Richard Katz, at the Educause Center for Applied Research, has explored the impact of new media on human interaction. In *The tower and the cloud*, Katz (2008) examines how higher education institutions (the tower) may interoperate with evolving network-based business and social paradigms (the cloud). These metaphors express the symbiotic aspirations of new knowledge paradigms.

Alan Liu (2008) has drawn on his experience as both a professor of English and investigator into the application of learning technologies at the University of California to reflect on the evolving nature of online literacy. The University of California’s *Transliterations Project* (<http://transliterations.english.ucsb.edu/>), in which Liu is involved, was established in 2005 to investigate the technological, social, and cultural practices of online literacy. Liu has outlined characteristics of wiki behaviour amongst his own students at University of California, Santa Barbara. Most students had the media proficiency to set up a wiki, but, as regards content management, they were often not attuned to established

literacy skills. In many cases, citation within the wiki did not extend beyond Wikipedia. This case study illustrated that what now passes for student research largely consists of cutting and pasting from the Web involving rapid content skimming with little or no process of critical reflection. Could such lack of awareness explain actions often considered by institutions as 'plagiarism' from the Web?

Donna E. Alvermann (2001) identified that adolescents' interest in the Internet, and social communication technologies (for example, chat rooms where people can take on various identities unbeknown to others) suggested a need to teach young people to read critically so as to identify how ideas are represented. At the same time, she suggests teaching adolescents that all texts, including their textbooks, routinely promote or silence particular views. Howard Gardner is best known for his theory of multiple intelligences. Gardner's 'Good Play', arising from the 'Good Work' project (<http://www.goodworkproject.org>; Gardner, Csikszentmihalyi, and Damon, 2001), studies fifteen to twenty-five year olds who participate in online games, social networking sites, and other online communities. The report authors argue that five key issues are at stake in the new media: identity, privacy, ownership and authorship, credibility, and participation (James, 2009). Drawing on evidence from informant interviews and theoretical insights from a range of disciplines including: psychology, sociology, political science, new media and cultural studies, the report explores the ways in which youth may be redefining these concepts as they engage with new digital media. Current findings show that far from being passive consumers, or perceived victims, of new media, young people are actively contributing to and defining the new media landscape through user generated content on sites such as Facebook, Myspace, Flickr, YouTube and Second Life as well as blogs and multi-player games. While the research team believes that young people are nurturing important skills through such collaborations, it is currently asking: are digital youth developing a corresponding ethical sense regarding their online activities? The project team is currently working with Project New Media Literacies at MIT to develop a curriculum to encourage high school-aged youth to reflect on the ethical implications of their online activities.

Critics argue that the Internet reinforces learning-as-information accumulation which is the antithesis of critical enquiry and appropriation of information through practice as advocated by constructivist educational paradigms (Coulter and Mandell, 2009). Computer-mediated communication amplifies a conduit view of language, while hiding the metaphorically layered nature of language, as well as masking how language on the screen reproduces a specific form of cultural intelligence (Bowers, 1998). New patterns of online reading emphasise rapid, cursive communal exchange as seen by web blogs, twitters, and online wikis. According to Ollin: "*... the conflation of language to communicate quickly and the lack of time for thought indicates that texting could be seen as 'fast-time' rather than 'slow-time' communication*" (2008, p. 273). Bauerlein (2008) urges the preservation of slow reading and writing spaces in North American educational institutions at a time when the predominant learning culture in Western society is both advocating and facilitating greater information acceleration.

There is consensus of opinion that new literacy is wider than the acquisition of traditional information skills (for example, how to use a catalogue, how to locate a book; how to access an e-journal). The information literate person should be able to apply critical thinking to analyse and evaluate information in the general context of problem solving.

FACILITATING NEW LITERACY BEHAVIOURS: WHAT IS THE IRISH EXPERIENCE?

In Ireland, the Consortium of National and University Libraries (CONUL) have developed an

information literacy policy. In common with international good practice, it identifies key competences of an information literate person. That person should possess:

- an ability to recognise appropriate information;
- an ability to locate the most appropriate information;
- an ability to critically evaluate that information; and
- an ability to manage and to apply that information within an ethical and legal framework (CONUL, 2005).

Kerins, Madden, and Fulton (2004) have explored patterns of IML through case studies of Irish engineering and law students. Their observations point to the fact that most students learn their information habits through their respective disciplines. Students tend to be strategic learners, taking their cues from their lecturers. The authors highlight a need to foster lifelong skills in the retrieval and exploitation of information. McGuinness has reported on findings from an Irish-based study into academic–librarian collaboration for information literacy development, demonstrating how entrenched beliefs adversely affect the potential for collaboration and put up barriers to the inclusion of information literacy in undergraduate curricula (2006). She argues that the embedding of IML in the curriculum requires a collaborative approach. Her study reveals the hampering of collaboration by institutional cultures. Most collaborative development is dependent on individual enthusiasm rather than institutional structures. Barriers included: the assumption among academics that IML was adequately catered in undergraduate curricula, as students become information literate through participating in a number of existing learning situations; academics’ belief that it was the students’ individual responsibility to avail of the many opportunities to become information literate in their courses; and conceptions of librarians’ teaching role as limited only to library orientation. While academics respected librarians, McGuinness’ study revealed that there was a perception of librarians’ roles being that of support rather than as educational collaborators.

BEYOND WIKIPEDIA AND GOOGLE: INFORMATION AND MEDIA LITERACY WORKSHOPS SUPPORTING HISTORY OF ART UNDERGRADUATES

Ronan Madden, Humanities and Multimedia Librarian at the Boole Library, University College Cork, was instrumental in developing a series of information literacy workshops to support History of Art students taking a third year supervised research project. The series focused on the application of information literacy to a disciplinary approach. At the end of the series students were expected:

- to recognise reliable information;
- to locate that information;
- to critically evaluate it;
- to correctly cite both online and offline content;
- to apply these skills to their individual research projects.

Student feedback, revealing their previous online behaviour, challenged assumptions that undergraduates were proficiently media literate. At the end of the five-week workshop series, Madden surveyed thirty students taking the course. The survey focused on the perceived relevance of the series to individual research projects (see Appendix, Table I). All respondents found the series very relevant to their disciplinary studies. Through feedback, students revealed that they had previously not known about advanced search engines. Individual responses revealed wishes to learn about the basics of copyright, especially relating to images, yet revealed previous scant awareness of the subject. Such awareness is potentially relevant to the professional lives of art history graduates. When is the most appropriate time to introduce information literacy sessions in a discipline?

Collectively, the survey group believed that IML workshops should be embedded into the discipline from first year (see Appendix, Survey I).

The first year of the workshops had been prescriptive in content and had followed a transmission approach to instruction. Student participation had been limited and this had not been helpful for tailoring particular sessions. Angela Brew has spoken of knowledge in higher education as negotiated through 'transaction spaces' if we change the space we change the learning dynamic (Brew, 2009). In the following year, it was decided not to have a defined curriculum, but rather allow students to devise their own topics for discussion in order to foster and facilitate a 'transaction space' for open dialogue.

The workshop series performed best when workshops were embedded within the curriculum and were used to enhance disciplinary understanding. Despite staff support, student attendance was lower in the second year than in the first year of running the programme averaging between five to ten students each week compared with twenty-five to thirty students in the first year of the programme. During the following year, the workshops were timetabled outside of the normal lecture schedule and were not formally assessed. The series was better attended when it was embedded within a project-based module where topics were directed towards assessment.

When embedding IML within a disciplinary study. It is helpful to consider the following:

- involve colleagues in workshop design and session enactments;
- align a workshop series with curriculum objectives;
- embed the enacted skills within the overall assessment process;
- use the workshops to enhance disciplinary understanding;
- begin workshops at an early stage of a degree cycle;
- create a space for student participation and feedback;
- facilitate students to link learning from their experiences and related studies;
- encourage students to practice the skills enacted within workshops.

WEB MEDIA AS ALTERNATIVE ENTRIES TO LEARNING FOR DYSLLEXIC STUDENTS

Students of art history, in particular those who are also dyslexic, found the workshops to be beneficial. Dyslexia constitutes part of a group of Specific Learning Difficulties (SpLD) that may affect learning. Dyslexia is the result of cognitive difficulties in the processing of the phonological parts of language. It affects the left-brain where language is not processed in the correct sequence. This means that anything to do with understanding and interpreting sequences of symbols is harder than normal. Dyslexia causes difficulties in learning to read and write due to slow and inaccurate coding of letters and graphic symbols into speech sounds and speech patterns (Smythe, Everatt and Salter, 2004). A predisposition to dyslexia is genetic. The affects of dyslexia vary from person to person. The only shared trait among people with dyslexia is that they read at levels significantly lower than typical for people of their age. Many students with dyslexia develop coping strategies. For others, the demands at third level mean that they may need to develop new coping and learning strategies (Kennedy, Treanor and O'Grady, 2008). A significant problem with dyslexia is a feeling of low self-esteem. This is often as a result of poor interaction with the education system, which can label those with dyslexia as unenthusiastic for learning as a whole without taking into account the problems that dyslexia can create. However, dyslexia is associated with remarkably artistic creativity.

Interestingly, the incidence of dyslexia is far higher among visual art students than non-art students (Wolff and Lundberg, 2002).

One of the central issues for the support of dyslexic students in higher education is an understanding of how dyslexia affects the individual's capacity to study within the teaching and learning framework of higher education. People learn in different ways. A dyslexic student benefits from multi-sensory teaching and an acknowledgement of their personal learning styles (Smythe, Everatt and Salter, 2004).

The experience of Paul (permission was given to use his name) illustrates ways the Web offers alternative entry points to learning for dyslexic students. Paul, a mature first year art history student, had only recently discovered his dyslexia as it had been masked in his previous experience of higher education. He was an intelligent, imaginative, motivated and articulate student; however, he experienced difficulties with written expression and information sequencing. This was a barrier to full participation as the majority of undergraduate assignments were written assessments. History of Art at University College Cork uses the survey course as a disciplinary foundation. Broadly speaking, this model has a strong chronological structure distinguishing stylistic periods. Students are tested on their ability to distinguish these stylistic phases through written assignments and written visual tests. A student may be required to become familiar with approximately three thousand images over a year (Elkins, 2002). Learning a new discipline involves laying down new patterns of thought and action which become habitual over time. Paul initially found difficulty in articulating the process of visual analysis. He rushed to comprehend meaning without first describing what he was seeing. This is a feature shared in common by undergraduates new to art history. The workshops assisted him in scaffolding his thinking in a structured way by planning and mindmapping.

A 'slow looking' scaffold, enacted through moments of pause, gave him time to sequence his visual analysis (see Appendix, 'slow looking' rubric). Dynamic web tools like audio and video podcasts, reviewed in class and included on the blog site, gave Paul alternative entry points to learning the discipline. Paul found a free multi-media web-book, Smarthistory (<http://smarthistory.org/>), most helpful for scaffolding his learning. Two North American art historians Beth Harris and Steven Zucker designed the site as a dynamic enhancement to publications. Harris and Zucker are interested in delivering the narratives of art history using the read-write web's interactivity and capacity for authoring and remixing. Smarthistory podcasts and screen-casts are spontaneous conversations about works of art where Harris and Zucker are not afraid to disagree with art history orthodoxy. Harris and Zucker believe that Smarthistory is a dynamic tool for understanding how art history can fit into the collaborative culture facilitated by Web 2.0. At the end of the year, Paul had improved his written assessments by ten percent and he gave credit for this to the scaffolding afforded through the workshops.

CONCLUSION

Increasingly, international visions of twenty first century learners include concepts such as enquiry led learners, facilitated yet self directed, collaborative in the construction of knowledge, multi-tasking, and problem solving. Evolving concepts of digital resources in disciplinary fields is that such resources should enhance both the teaching and learning experience and where possible extend that experience in a seamless way. For example, in the discipline of art history, a digital panorama may give a greater experience of spatial relationships in a building or a piece of sculpture than a single slide or static photograph can and so, in this way, the digital tool helps to enhance the teaching and learning experience. The use of dynamic web tools, such audio and video podcasts, gives dyslexic students alternative entry points to learning.

Clearly, the speed and availability of information technology means that students have greater access to information than ever before, but can educators assume that students know how to pick their way through the mass of content in a discerning, critical, and ethical manner? Melissa Terras, Centre for Digital Humanities, University College London, predicts that the information professional of the future will have a pivotal role disseminating professional knowledge through public education and feeding back user needs to further develop and refine institutional collections while keeping abreast of technological and cultural shifts in society (Terras, 2008). An information and media literate person should be able to apply critical thinking to evaluate information in the general context of problem solving; to reveal the complexity of things; to value intellectual honesty and to foster critical awareness about all types of authority. Educators have a duty to model good practice. The question we should be asking as educators - academics, librarians, administrators and technicians - is the following: how best can we facilitate our students with the skills necessary not just to function, but to behave critically and creatively within a complex information society?

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APPENDIX: SURVEY OF THE WORKSHOP SERIES

TABLE 1: SURVEY OF THE WORKSHOP SERIES: STUDENT EVALUATION FORM

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Applicable
The objectives of the sessions were well communicated to me	9	17	1	0	0	0
The content of the presentations was what I expected	6	14	3	1	0	0
I have understood most of the material covered in the course	12	11	2	0	0	0
This content was logically organised	10	14	2	1	1	0
This series will be relevant to my research	14	11	2	0	1	0
Total students surveyed	30	30	30	30	30	30

SURVEY 1: SAMPLE OF THE PREDOMINANT STUDENT RESPONSES

Question: 'What part/s of the series did you find most useful?'
<i>I found new ways of searching [the Internet] very relevant</i>
Question: 'Which part/s of the series did you find least useful?'
One response to this question: <i>Some of the library searches were too basic for 3rd Year. However, learning about advanced [Web] searches would be helpful.</i>
Question: 'What would you like to see included/covered in more detail?'
Respondents would have liked more detailed information on image copyright.
Question: 'What is your overall verdict of the series?'

The following comments are representative of the respondents surveyed:

I think this series is a good idea, however, I feel that it would be more beneficial if the classes were given in 1st Year and then maybe recap in 3rd Year because a lot of the information would have been very helpful in research proposals given in 1st and 2nd Year.

Perhaps this class could be given in 1st Year. Learning about the library and images would be much more helpful at the beginning.

The series could have been more relevant to the writing of the dissertation.

I have applied some of the things I have learned as I research for my dissertation.

Very helpful series regarding how to search the Net.

Very useful, I didn't previously know about advanced search engines.

I would like to learn more about e-journals.

I'm surprised these workshops have not been offered before.

Very necessary as I was not aware of all the places I could get information.

'SLOW LOOKING' RUBRIC

Looking at images: questions to ask yourself

The following are a selection of questions you could use to scaffold your critical analysis of an image. The following examples relate to looking at a painting, but you could modify these questions to support looking at a piece of sculpture or a building.

This is not an exhaustive list, add your own questions if you like:

The image caption may answer the following questions:

- Who is the artist?
- What is the title of the work?
- What is the size of the work?
- What is the medium (fresco, oil, tempera etc.)?
- What is the date?
- Where is the work now located?

Many of us forget to describe what we see:

- How is the composition arranged (tight or loose)?
- How is the subject painted (heavy or light brush work)?
- How does colour evoke mood (atmospheric, dramatic)?
- What details look familiar or unfamiliar to you?
- Is there anything that stands out for you?
- Does this connect with anything seen before?
- Look closer for meaning through style and symbol:

Do you recognise the subject (content of the painting)?
What does the subject-matter tell you about its meaning?
Who commissioned the work (patron)?
Why was it commissioned (public or private commission)?
Who owned the work (did it change hands)?
Is it characteristic of the period (art historical style)?

Think about the context of the work and what has been critically written about it. How does this effect the way we look at the composition?

What is the original historical context (period)?
How does context inform meaning (significant events)?
Do sketches inform the work (are their changes over time)?
Has the work been restored (any new discoveries)?
What has been written about the work (art history)?
How does critical opinion inform meaning (art criticism)?

Martina Kelly, Deirdre Bennett, and S  in O'Flynn

CONTEXT

Clinical practice is by definition, itself an integrated subject: the module amalgamates previously distinct clinical specialties e.g. within medicine, surgery and primary care. Five years ago, this term would have been meaningless in medical universities; we have emerged from isolated discipline based teaching. The module is delivered at clinical sites, across a range of primary, secondary and tertiary care services in geographically diverse centres e.g. one week a student may be studying plastic surgery in a large 500 hundred bed hospital, the following week they could be doing a

house call in an isolated rural town. Students are immersed in full-time clinical placements – the curriculum is delivered across these sites by a group of tutors (of varying specialties) by means of ‘integrated case studies’. The use of ‘case-based, problem based learning’ is promoted on the basis that it promotes authentic, person-centred learning. Such methods also promote problem-solving skills. Four key elements form the basis of the module: core knowledge; problem solving; clinical skills; and communication skills. To do well students must demonstrate their ability to make connections between all four dimensions.

As we describe this module, we realise how ‘integrated’ this module is; integrated subjects (e.g. clinical practice), integrated assessment (e.g. from Objective Clinical Skills Examinations (OSCE) to reflective journal) and the integration of teaching methods by a team of multidisciplinary teachers are all tangible outputs of the new curriculum.

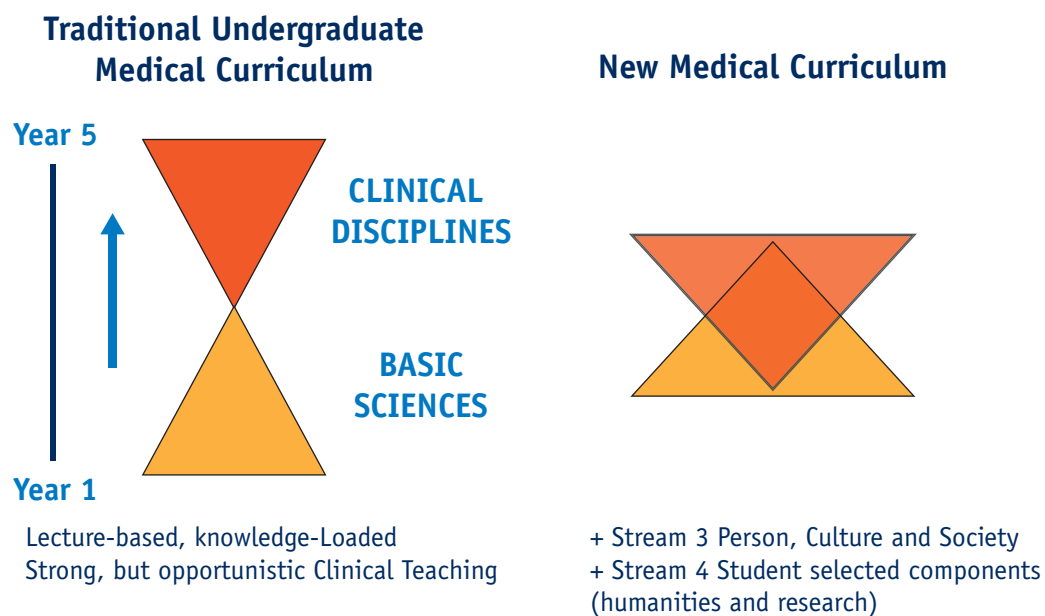


Diagram 1: Overview of Old and New Medical Curricula, UCC

FRAMING THE QUESTION

How has this integration impacted in terms of student learning? One way to determine this is to critically examine our assessment. If our teaching is promoting integrated learning, the principle aim of the new curriculum, surely this should be a demonstrable output.

In keeping with good practice, the new curriculum has seen the introduction of a diverse range of assessment tools. Traditional assessment methods, such as essay type questions and oral examinations, have been criticised for lack of standardisation and for failing to assess a breadth of knowledge key for clinical practice. In keeping with this, the new curriculum has embraced new assessment methods such as OSCEs (Objective Structured Clinical Exams), mini-CEX (Mini-Clinical Exams) and EMQs (Extended Matching Questions). These assessment methods appear to be more valid and reliable. There is also now more focus on continuous and formative assessment.

We began by examining our assessment blueprint to determine whether it actively promotes the “making [of] connections” (Table 1). From this analysis, it appeared that case histories retained a core role within our assessment framework. Historically, bedside teaching and the recording of a medical case history have formed the basis of clinical training.

Domain	Core Knowledge	Problem Solving	Clinical skills (History taking, Physical examination & Procedures)	Communication skills
Delivery <i>(physicians and surgeons of different specialties)</i>	Lectures Small group learning* – case based discussion	Clinical skills lab (data interpretation) Small group learning	Clinical attachments Clinical skills lab Small group learning – case based discussion	Lectures Clinical skills lab Small group learning Role-modeling <i>(both positive and negative)</i>
Assessment	EMQ Case write ups Tutor feedback	OSCE EMQ Case write ups	OSCE Case write ups Clinical skills log MiniCEX Tutor feedback	OSCE Case write up Participation in SGL MiniCEX Tutor feedback

*Small group learning (SGL) and clinical attachment groups are made up by mixing students of different nationality and gender.

Table 1: Overview of current teaching and assessment methods in Clinical Practice Module

What is a case history?

When a patient attends a doctor, typically the conversation follow a predictable course, where the patient states their health concern and the doctor asks some questions to clarify and explore the issue in detail. This is traditionally followed by some element of physical examination. All the information is recorded in a detailed note, which includes a summary of key issues, a list of problems that need to be considered and a work plan. Learning this forms the basis of clinical training. Whilst sounding simple, collecting and assimilating this information is a complex task, which involves a range of skills; communication skills (verbal and non-verbal) to collect the information, clinical skills to perform the physical examination, problem-solving skills to distil an appropriate summary and differential diagnosis and finally professionalism to gain a patients confidence and conduct the process in a timely

manner. We also ask students to write a brief reflection on the case they submit as a means of encouraging students to consider their strengths and weaknesses, in terms of advancing their learning.

Throughout the year, students submit a number of case histories, which are marked according to a pre-defined rubric, which is used to assess graduates of international medical schools seeking to enter graduate training programs in the United States*. These cases act as a means of documenting continuous assessment and form the basis of formative feedback as students are given detailed feedback on their case-work.

What is an OSCE?

An OSCE is an objective structured clinical examination. It consists of a series of structured scenarios, through which students rotate. A typical exam consists of a scenarios which test a mix of consultation skill, performance of clinical examinations and procedural skills. Although much effort goes into ensuring authenticity, including the use of trained patients, to ensure standardisation (essential for high stakes examination), it remains a simulated exam.

What is a miniCEX?

A miniCEX is a brief clinical examination. These are designed to be authentic learning situations, which focus on one aspect of assessment. They primarily used for formative purposes. A key advantage to the use of miniCEX is that they record encounters with real patients.

What is an EMQ?

Extended Matching Question papers consist of a core area and a series of options. An example is where the student is told that the area under examination is the symptom of cough. Students are then presented with a clinical problem (e.g. a 20 year old student presents with cough) and a series of likely answers. The student must select the most appropriate solution.

They are specifically designed to focus on problem-solving.

Box 1: Information on assessment modalities in medical education

The face validity of case histories as a means of integrated assessment appears high and a good means to demonstrate integrative learning, where students can *“adapt the skills learned in one situation to problems encountered in another”* and *“see connections in seemingly disparate information ... to draw on a wide range of knowledge to make decisions”* (Association of American Colleges and Universities, 2002, pp. 21-22). We also felt that historically, whilst so much has changed within medical education, the Darwinian survival of this tool indicates its role as a signature pedagogy . We noted that despite sufficient psychometric data to support the use of more modern assessment tools, little is published on the case history as an assessment tool, despite the submission of case histories as a key requirement in the majority of medical curricula.

We hypothesised that case histories should demonstrate integrated learning and decided to examine in more detail the role of case histories as a means of assessing integrated learning

within our new curriculum. We predicted that integrated learners should receive high scores on their case histories and do well in the end of year exams. We hypothesised that the case history, as an integrated test, should have a high correlation with the overall end of year grade (as this is a composite of assessment of various domains). Conversely, we predicted that poorer students, should get lower marks and were less likely to achieve high marks across the diversity of assessment methods offered. We were interested to explore the correlation with more widely used, validated assessment tools such as the OSCE, EMQ and mini-CEX.

GATHERING THE EVIDENCE

Assessment details of year three students from the academic year 2008-9 were entered into Graphpad INSTAT version three. This included scores from the various assessment elements; case histories, EMQs, OSCEs, mini-CEX and total grade. Results were analysed using a Wilcoxon matched pairs signed rank test (non parametric distribution).

As the results emerged, we complemented this quantitative investigation with a qualitative analysis of a purposive sample of case histories from students obtaining higher and lower marks.

EMERGENT FINDINGS AND BROADER SIGNIFICANCE

	Spearman correlation coefficient (r)	P value
End of year	(r) = 0.5841	< 0.0001
OSCE	(r) = 0.2917	0.0013
OSCE + mini CEX	(r) = 0.3473	0.0001
EMQ	(r) = 0.2890	0.0014

Table 2: Relationship between Case mark and assessment modalities

The results indicate a high correlation between the mark obtained for the case write-up and the various assessment modalities. The correlation is highest between cases and the end of year results, which makes sense if the overarching mark is assessing a cumulation of different skills domains. We are heartened to see a high correlation between the case history mark and the combined OSCE and mini-CEX assessment as this element of assessment most closely proximates the 'shows how' of Miller's pyramid (Figure 2).

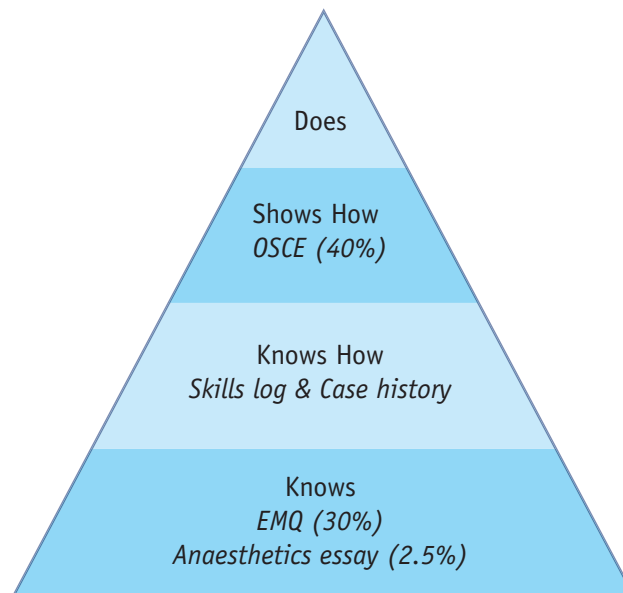


Figure 2: Assessment of clinical practice module, year three, in relation to Miller's pyramid

To check reliability, we then looked at this information in more detail by splitting the end of year marks into top and bottom half and looked at how those correlated with the case marks. There was a difference here. For students who came in the top half of the class overall the correlation between end of year mark and case mark was (r) = 0.3629, p = 0.0041, considered very significant. By contrast for students who came in the lower half of the class (r) = 0.2379, p = 0.0432, considered significant.

So students who came in the top half of the class overall were likely to have done well in the cases. However, students in the lower performing group may still receive a high case mark – this seems to suggest that a student might do well at the cases and then perform disproportionately poorly with the other elements; challenging the degree to which we have taught our students integrated thinking.

Is it that students who would have done well, are integrated thinkers anyway, and continue to do well regardless of new pedagogical approaches? We questioned if there is a subgroup who write up their cases well without having the underlying clinical skills/problem solving skills – this echoed concerns raised by our classroom experience.

To understand this further we decided to examine the students work from a qualitative perspective by reviewing the case histories of students. We took a sample of cases from lower and higher performing students. We started by looking at cases which received a low mark to see if there was any patterns emerging. In many cases, low marks were given because the student did not follow the instructions given; omitting key sections of the cases. This group of students also tended to have a 'scattergun' effect of recording information, and their cases were devoid of specific detail, especially relevant negative information (which we consider key to problem solving). They tended to have a disorganised approach to note keeping. The cases lacked focus and students made no attempt to prioritise the information they were given.

We also noted a difference in the type of learning need identified by students who received a high and those who received a low mark. Students receiving a higher mark were more likely to identify the need to further practice their skills. They tended to focus on process issues e.g. *'need to become more fluent in my history taking', 'practice time management'*. Students receiving lower marks seemed to identify their learning needs in terms of knowledge deficits e.g. *the need to look up the biological problem*. Higher performing students seem to have some insight into the need to integrate the various skills requisite for good clinical history taking; that practice and experiential learning are needed. Poorer performing students did not seem to acknowledge this as a problem. This is interesting as it correlates with our experiences as teachers. Frequently students who do poorly in clinical practice, do not have knowledge gaps – it is that they do not practice enough – eschewing the wards to spend more time in the library. These issues echo Perry's work on levels of expertise and are food for further research.

This qualitative analysis also demonstrated that students on hospital rotations emphasised the biological perspective. Despite three years of experiencing an integrated curriculum, the psycho-social perspective remained singularly absent from their case records. This is somewhat surprising as a key focus of the new curriculum is to adopt a 'bio-psycho-social' approach. In contrast cases written from primary care, were full of the psychosocial perspective, yet were poorly developed in terms of recognising more complex physical ailments.

We wonder if this is simply reflective of the practices in contrasting clinical environments? The most likely explanation is that students are simply modelling their answers under the influence of their teachers. This highlights the need for integrative learning not only at the student level, but also within the 'swampy lowlands' of clinical reality. Many of the aspirational developments described earlier have occurred at an academic level, within the protected ivory tower of a college campus. This reminds us that integrative learning is an evolutionary process – that change, certainly within the medical context, is likely to take time. It is unlikely that our students will feel comfortable to challenge the status quo. Although we included a requirement for a reflective element to their case histories, this was rarely developed beyond a superficial level of questioning. Again, it is likely that this demonstrates the emphasis we as teachers place on this process, rather than any deficit in our students. Perhaps this is reflective of the focus we ourselves as graduates of more traditional programs have had and this has filtered down to the students. So do we as teachers, also need to challenge our comfort zones, when it comes to integrated learning? Does integrated learning require *"different pedagogical relationships"*? . This stimulates us to reflect on the wider context of teaching and learning, particularly in the professional arena. The relationship between doctors and patients has changed. As states *"its not just patients and doctors anymore; purchasers, regulators and other practitioners must be brought into the [social] contract"*. Perhaps the format of the case history, so lovingly preserved needs to evolve, in recognition of this changing relationship? In our qualitative analysis we noted that students who did well, used the format to their advantage, yet that joined-up thinking of integrating biological, psychological and social perspectives, so lovingly embedded into the academic portion of the course, did not emerge. Does the formal objective language preferred by the passive voice of positivism influence this? If the patient voice was to be made more central to this process would this promote a more patient-centred outcome? Donnolly eloquently argues this point and suggests that *"the dubious language practices used in conventional 20th-century medical case histories harm students and practitioners of medicine as well as patients"*. Is it time for the case history to take its place in the archive or does this present an opportunity to improve the archetype?

CONDITIONS FOR DOING THE SCHOLARSHIP OF TEACHING AND LEARNING

This study highlights to us the oft neglected role of context in learning. We had not, despite taking lead roles in developing a module in 'clinical practice' reflected on the integrative nature of the

module. So many different doctors, from different backgrounds, working together across disparate geographical sites and different health care contexts is an achievement. Together we have had to critically evaluate what is core to what our students learn as we argue what's important and not. Sometimes this reaches ridiculously minute levels of detail. Yet it must be of benefit to students. Much of the integration of their learning is based on the cumulative experience of practiced professionals. This is reflected in virtually every element of their course; from module descriptor, to course delivery to standard setting meetings. The true success of our new curriculum is not new modules but new ways of working together to reach a common goal.

Huge changes have occurred within the university setting – how these trickle down into sites of health care delivery remain challenging – despite efforts at faculty development. Role-modelling remains a dominant force within teaching. It is interesting to see how different approaches to problem solving within primary and secondary care influence student development. In a sense the journey is ongoing. We have not yet finished one cycle of the new curriculum and of course, the true test of our efforts will be decided by patients.

BENEFITS OF THE WORK AND LESSONS LEARNED

This study focused our attention on integration within our new curriculum. In particular we have focused on the role of case histories as an integrative assessment method in medical education. Results would indicate that case histories assess integrated learning. However, gaps remain. We believe we need to change our marking rubric to reward higher order thinking. This year we have revised the marking rubric to focus on higher order skills such as summarising and prioritising. There is a danger of neglecting basic skills if we advance too fast – we still need to focus on the basics such as information gathering but focus on how to do this in an expedient manner. We conclude that the benefit of retaining case records as part of a portfolio process, to document authentic learning in a longitudinal manner would appear appropriate. However, it would appear that the more robust assessment methods we currently employ are more effective and efficient for assessment of integrated learning. This study also highlights a challenge. Although case based learning remains de rigueur in medical education, the traditional methods by which we record pertinent patient information has not changed. Accordingly, when tested as a tool for assessing integrated learning, it does not measure up. Is it time to change the format to reflect the new professional relationship between doctor and society, which emphasises the outcome of integrated learning – that of integrated care.

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THE ARTS IN EDUCATION AS AN INTEGRATIVE LEARNING APPROACH

Marian McCarthy

CONTEXT

A number of contexts have a bearing on my focus in this Integrative Learning Project. The first is that, as programme co-ordinator of the Certificated Courses in Teaching and Learning in Higher Education, I am conscious of how I can find some common ground for lecturers across the disciplines, so that we can begin to talk about teaching and learning and how these are interdependent. The second context relates to my interest in the pedagogy of Teaching for Understanding (TfU) (Wiske, 1998) which speaks to lecturers as disciplinarians as well as teachers and provides them with a framework to critique and develop their teaching and advance student learning. I have written elsewhere about the implications of this model for higher education (McCarthy, 2008a) but will focus here only on one aspect of the framework: the performance view of understanding (Perkins, 1998). The latter is grounded in an active learning approach and contrasts with the more traditional, representational view of understanding which predicates a more passive, teacher-focused view of understanding. In the context of the three programmes that I teach at University College Cork (UCC) - the Certificate, Diploma and Masters in Teaching and Learning in Higher Education - I am constantly challenged by the Teaching for Understanding (TfU) approach, always asking myself the question: How can I engage my colleagues in their learning? How can I find performances of understanding for them that will help demonstrate their knowledge of teaching and learning and advance it? This brings me to the third context of this work, that of the role of the Arts in Education as a catalyst for learning. My interest in the Arts is an intrinsic part of my life, and has shaped my teaching, which was influenced by lessons learned in the artistic disciplines of drama, speech, mime and dance. Through the Arts, I found a voice and a way of viewing the world and synthesising my perceptions of it and those of my fellow actors, speakers, and dancers. This transferred into my career as a second - level teacher of English and Drama and of Civic, Social and Political Education, where I used the Arts as an educative tool, as an entry-point to learning in these subject areas (O'Connell/McCarthy, 1994). So when I came to the Project Zero literature (Veenema *et al*, 1998) and the TfU approach, as a third - level teacher, I was not surprised to find a focus on the idea of creative performance and, indeed, of being actively involved in responding to the arts, as intrinsic to learning.

The final context that speaks to my involvement in this Integrative Learning Project, is that of the scholarship of teaching and learning and its focus on documenting and researching teaching and learning. I have attempted to provide an overview of this literature elsewhere (McCarthy and Higgs, 2005; McCarthy, 2008b), but will focus here on its practical application in my own classroom. Daily, I am challenged as to how to involve teachers, with full lecture schedules and research profiles and deadlines in their own disciplines, in researching their teaching and their students' learning. Though the Scholarship of Teaching and Learning (SoTL) does not offer a panacea, it acknowledges that teaching and learning belongs to all in the university, and not only to education departments. It also honours the contribution of the disciplines in framing research questions in teaching and learning (Shulman and Hutchings, 1998) and so gives third-level teachers a way forward that parallels their research in their disciplinary fields. My challenge is to open up my third-level colleagues to the world of SoTL and the concept that the 'problem' in teaching is not one from the deficit model of remediation, something that can be 'fixed', but an investigative problem, like any other in the research world (Bass, 1999). Boyer's (1990) paradigm of the four scholarships has profoundly changed our focus in higher education and given the scholarship of teaching and learning its due place as research. It has also put the spotlight on the Scholarship of Integration, as

one of the four scholarships, putting up front the challenge of working on the margins of several disciplines, of crossing boundaries and integrating various disciplines- indeed, the daily experience of most lecturers. It is to this challenge, in the context of promoting a SoTL approach that this chapter speaks.

FRAMING THE QUESTION

Background Note

The Arts in themselves - the worlds of art, music, dance and drama - provide us with multi- modal ways of creating and appreciating the world (Gardner, 1999a, 1996b; Greene, 1995; Neelands and Goode, 2000; O' Neill, 1995; Veenema, Hetland and Chalfen, 1997). Arts programmes also teach a specific set of skills rarely addressed elsewhere in the curriculum (Bryce-Heath, 1999); such skills not only relate to the technical and artistic skills of the discipline in question, but also include visual- spatial abilities, reflection, self – criticism and the willingness to experiment and learn from one's mistakes (Winner, Hetland, Sheridan and Veenema, 2007). The Arts in an Educational context then take us a step further, providing fruitful entry points to learning and understanding across the disciplines (Gardner, 1999a, 1996b). Founded on the principle that the arts are cognitive and that they afford distinct ways of coming to know the world (Tishman and Wise, 1999), much of the work of Project Zero at the Harvard Graduate School of Education has its roots in the Arts (Veenema, Hetland and Chalfen, 1997). The Arts, in this context, "provide powerful ways of making meaning and of educating keen ears and eyes, creative minds and hands" (Veenema *et al*, 1997). The arts connect, therefore, with major theories of teaching and learning (Hetland and Veenema, 1999).

Since the current focus in the US on integrative learning grows out of a Liberal Arts context, it is important to briefly explore the relationship between the liberal arts and the arts in education, as defined in this study. Liberal arts programmes in the US are taken by students from any discipline to broaden their education, the idea of which has its origins in the benefits of a liberal education (Newman, 1976). In the context of UCC, in general, Arts graduates take such courses, in disciplines like English, French (or any of the other languages), Music, Drama and Theatre Studies, History and so on. Recent initiatives such as that of the School of Medicine and Health at UCC, for example, aim to involve students in taking Arts modules and electives as part of their degree. The important distinction in the context of this study is that I am looking at the Arts not only as disciplines in their own right, with all the artistic and aesthetic richness that that implies, but also as pedagogical tools, which can be used to explore any discipline, in this case as entry points to the discipline of teaching and learning itself. The Arts in their educative capacity also facilitate a reflective approach, which allows us to capitalise on the artistic experience, of reading a painting or being involved in a role- play, for example, as a learning opportunity.

THE RESEARCH QUESTION

Arising out of my interest in the Arts in Education as a catalyst for integrative learning and the contexts provided above, I have refined my research question, with the help of my critical friend, Dr Shane Kilcommins, to read as follows:

How can the arts in education work as a catalyst to facilitate integrative learning and how can engaging in the arts teach us about the process of integrative learning?

GATHERING THE EVIDENCE

This study was conducted in the context of the Postgraduate Certificate in Teaching and Learning in Higher Education (PGCTLHE), in 2008- 2009 academic year, a class group of forty-five staff members, and of the Diploma in Teaching and Learning in Higher Education (PGDTLHE), of the same year, a

class group of thirty-five participants. The project focused in particular on two artistic media: the Visual and the Dramatic Arts, and examined their roles in promoting integrative learning. A series of Arts workshops were conducted with both groups to address the nature, approaches and processes of integrative learning as defined in and by the Arts and their application in the context of teaching and learning.

As part of module *TL6004: Practice Approaches to Teaching, Learning and Assessment*, PGCTLHE participants were introduced to the *Project Muse* and the Entry Points QUESTs model of approaching art, as defined in the work of the Project Zero Classroom (Simon, 1998), at the Harvard Graduate School of Education. Participants were then invited to visit the Glucksman Gallery at UCC in February 2009 to discuss a variety of art works. They worked in interdisciplinary groups to appreciate and discuss the art pieces chosen in the light of *Project Muse* approaches. Participants reflected on the variety of perspectives that emerged from the discussion and related to the disciplinary and interdisciplinary contexts that might underpin these. They considered the implications of this exercise for student learning, drawing on the insights gleaned from integrating other perspectives and disciplines. Participants were also encouraged to relate their learning to their course portfolio assignment, based on the Hutchings model (1998), due for submission in March 2009.

As part of module *TL6006: Diverse Approaches to Student Learning*, the PGDTLHE group also visited the Glucksman Gallery and engaged with the art work as already outlined. In addition, they took part in a Drama in Education workshop in February 2009. The class groups considered a number of questions in the light of these two artistic media and how they act as catalysts for learning across the disciplines. Participants focused on the importance of art works for generating a variety of perspectives and their role in making learning visible – for one can continue to revisit/refocus on the picture/art work and see it anew. Equally, participants explored a number of poetic texts relevant to teaching and learning through a dramatic lens. The focus in this context was on encouraging teachers to represent learning in a variety of ways, on using such strategies to support student learning in appropriate ways across the disciplines and on enhancing/critiquing the signature pedagogies (Shulman, 2005) already in place in the disciplines. Participants were encouraged to make their insights/findings part of their inquiry portfolio, based on the Bernstein model (2006), due in March 2009.

Given the wealth of evidence in both contexts, I have decided to focus this study on the trip to the Glucksman Gallery, which involved both class groups.

EMERGENT FINDINGS AND BROADER SIGNIFICANCE

Six groups, representing thirty-five participants from both classes and a cross section of disciplines, responded to the *Generic Game* questions and those of the *Entry Points* to learning. Of these, three groups, representing twenty participants, also answered all of the nine *Reflective Questions* designed to elicit an integrative learning perspective; there were also group responses to a selection of the questions and some individual blog responses which will be used to reinforce/triangulate the evidence. (See Appendix 1 for a copy of the theoretical frames and questions informing the Glucksman visit, which included questions based on the *Generic Game*, *Entry Points* and *Reflective Questions*). I used the questions to define the categories to be investigated, all of which comment on the central theme of the research, namely, the nature of integrative learning as it presents itself in this context of interdisciplinary groups looking at art works. I then drew themes from these categories that permeated the transcripts as a whole, rather than the responses to the individual questions.

All are interrelated and ultimately embedded in each other, for integrative learning is a holistic approach, where the whole is greater than the sum of its parts. In practice, the following themes co-exist and emerge simultaneously. For the purpose of this investigation, however, it is important to acknowledge the contribution of each in promoting integrative learning:

THEME 1: THE GLUCKSMAN GALLERY AS A CATALYST FOR INTEGRATIVE LEARNING

The first theme is situational, or environmental, and relates to The Glucksman gallery itself as a new learning space, a potential zone of proximal development (Vygotsky, 1978), wherein participants can challenge each other and develop higher order responses to artworks than would be possible if they were working as individuals. Since I am working with colleagues across all disciplines, it is a challenge for me to find an engaging space on campus that won't have too many associations with disciplinary stereotypes, where we can 'get away' from it all and 'start again' to explore the nature of teaching and learning. The Glucksman provides such a playful and creative space. This aspect comes across as a thread in the themes discussed below, but is also evident in some direct comments which focus on the enjoyment, as well as the learning involved in reading artworks:

"Working in the group and picking out a painting in the Glucksman was enjoyable again this year." (MoG: 3/4/09)

"I also found the visit to the Glucksman very enlightening. I had also completed this exercise last year and again really enjoyed the experience and valued the idea of being able to think and speak outside my own comfort zone. Apart from the object of this exercise on each occasion, I found myself waking up and having fun." (MC: 5/4/09)

"I think the trip to the Glucksman gallery to explore the role of the Arts in Education is a very valuable exercise. One of the foremost advantages of this exercise is to highlight how each member of the group can view things and suggest interpretations that you never envisaged." (KR: 3/4/09)

THEME 2: GROUP WORK AS A CATALYST FOR INTEGRATIVE LEARNING

Group Discussion:

Over the course of answering the nine integrative learning questions, group and individual blog entries drew attention to the importance of working and talking with colleagues as a key factor in promoting integrative learning, thus identifying it as one of the overarching themes of these findings:

"...Our interpretation of the work was greatly facilitated by the group discussion, because ideas from one person led to follow on ideas from others in the group, leading to interesting discussions and sub-plots....This was seen to uncover different points of view which helped all the team members form a more complete picture of the work and led to greater understanding of the work of art." (G6: 20/2/09)

The idea of discussion 'as uncovering different points of view' is also reinforced in other postings:

"Working independently and assessing something from an individual perspective gives a certain insight into the situation. However, getting the views from other people who work in different disciplines and who have different interests can transform that insight." (MG: 3/4/09)

'Listening in' to some of the discussions about the paintings, recorded by the scribes in the postings about the Generic Questions, will also confirm this view. Group Two (posting on 18/2/09), for example, discuss the connections of Paul Henry's *Road to the Mountains* with their own lives:

"A: I associated with happy memories, childhood stories from parents or grandparents around the fire.

B: No! It looks like a picture of poor Ireland and twee Ireland for the yanks!

C: Reminds me of childhood time, spending it with my grandmother and uncles on the farm ..."

They then continue to discuss whether the picture is real or true to life?

"A: I think it is still true in extremely rural parts of Ireland today- remote mountainous areas.

C: I would like to think that this still exists, but, in reality, pictures such as this are few and far between.

B: I want more colour, more life to represent what I think Ireland is truly like."

A contrast in perspectives is beginning to emerge, an inherent part of discussion. Group Three (posting on 17/2/09) also show the nature of the unfolding of group discussion in their consideration of what is going on in Seán Keating's *Men of the West*:

"A: The subjects look watchful, waiting: is it a call to arms or a hunt?

B: One of them is relaxed, another is clearly not.

C: One of the subjects looks annoyed

D: All looking out in different directions

E: Has the look of a Wild West or Mexican scene. They look on guard".

What is beginning to emerge is that providing a focal point (the painting) and a set of definite questions (the *Generic Game/ The Entry Points Quest*) can prompt discussion and the outing and development of a variety of perspectives which, in turn, can lead to an integrative approach as the individuals grow into a team. The collaborative nature of good group work and discussion, however, cannot be taken for granted and leads to a consideration of the nature of group dynamics, which also emerges in the transcripts.

Group Dynamics

The group dynamic aspect of such work emerges in some postings, in the form of developing respect, trust and security within the group:

"My focus changed too when listening to others." (MG: 3/4/09)

The above comment relates to respecting the other in a listening context – a precursor of an integrative attitude. The following comment also takes up this point:

"It also reminded us that group work has to take place in an atmosphere of mutual respect and understanding." (G6: 20/2/09)

The detail of what is involved in this process of respect becomes clear when this group considers its implications for instigating and developing group work with their own students:

"It took us awhile to become comfortable sharing our ideas and interpretations with each other. If we were to use this methodology with students, we would have to ensure that we created an environment where each student would feel comfortable to contribute and where students would come with an open mind and be supportive of each other. Also we would need to bear in mind the

possible different cultural backgrounds of the students and how this would either help or hinder their participation in a free – wheeling open discussion.” (G6: 20/2/09)

This sub-text of ‘breaking down barriers’ as an integrative learning approach also emerges in the context of creating a functioning group dynamic:

“As for the visit itself, it is a wonderful way to get group work started to break down barriers that exist when people are from diverse situations. There was no pressure to be a respected art critic but everyone contributed to the discussion. This is something I could envisage using at the early part of term to get the students to open up and relax and also to build on communication skills speaking openly in a group.” (MC: 5/4/09)

THEME 3: RECONCILING MULTIPLE PERSPECTIVES AS A CATALYST FOR INTEGRATIVE LEARNING

Another over-arching theme emerging from the postings is that of relating to, coping with and integrating multiple perspectives. Several sub-themes are embedded here and a discussion of each should cast some light on the nature of integrative learning in a group context.

From the Individual to the Group:

It is to be expected that a group context would bring forth multiple perspectives. However, integrating these is not an intuitive or transparent process, though, as indicated above, it usually begins with an individual perspective:

“Individually, we nearly all saw something in the work that wasn’t spotted by the others. One person noticed the exit point for the dancers (or one of them) at the top left, faster than the other group members. Another group member noticed the handwriting on the ‘bricks’ while another observed that there seemed to be lines radiating from the centre picture.” (G6: 20/2/09)

However, as each individual speaks, the group context can begin to grow:

“The threatening aspect of the picture was a new dimension to me.” (G1: 27/2/09)

“Multiple inputs from interdisciplinary groups are very valuable.” (JB-G3: 19/2/09)

Challenging Perceptions

Another sub- theme emerging in the category of accommodating multiple perspectives is the evidence within the postings that perceptions and preconceptions are challenged within a group context:

“the picture challenged my perceptions of the era, mainly due to the clothes and the colours” (in the painting) (JB: 19/2/09).

This view is reiterated in some other individual postings:

“I would have seen the painting (Men of the West by Seán Keating) as three men in watchful state waiting for some sort of conflict. Hearing the views of others though changed what I subsequently saw as they focused on other aspects, such as the clothing of the era in which it was set.” (MG: 3/4/09)

This lecturer goes on to say that her focus also changed when listening to others talking about the artist and discovering that he had included a portrait of himself in the painting. Regarding the same work, another lecturer commented that her perceptions were also challenged when her group:

“interpreted the dress to reflect more closely with that of the West of America, rather than the West of Ireland.” (KR: 3/4/09)

Though this stance is subsequently challenged, it draws the comment that:

"we bring our conceptions and ideas and background to a problem , which influences how we look at it." (KR: 3/4/09)

Another painting, of a young man killed by the IRA, also challenged the perceptions of the viewer:

"(I) thought it to be a young female lying in an uncomfortable sleep ... to my dismay it turned out to be a boy. We later discovered that the artist had used the image of a statue to draw the boy..." (MC, G4: 5/4/09)

This viewer goes on to comment that:

"had I not read the facts behind the picture, I would never have guessed what it was portraying." (MC, G4: 5/4/09)

Making Connections

I deliberately included a reflective question on disciplinary perspectives to make participants conscious of where they were coming from: Drawing on your discipline, what kind of connections did you find yourself making with the work? This question led to some interesting responses which comment further on the nature of integrative learning. In the following posting, Group Six are discussing Rita Duffy's *The Last Waltz*:

"From an electronics perspective, (two of the group members were engineers), the colours of the painting and the patterns of bricks and lines resembled the patterns we see on silicon integrated circuits and the Computer Aided Design tools that are used to design these electronic devices. From an anatomical perspective, the reddish – purple colour spread between the other colours might represent a deadly inquiry and blood loss and the lines radiating from the centre of the picture resemble connections between regions of the brain." (G6)

Group One, posting on 22/2/09, see connections with Dermot Seymour's painting *They say McEntee was consigned to a boghole in Knockallossett* depending on their disciplines:

"From the public health perspective, you could make a lot of connections to determinants of health; for example, war, physical environment, bleakness of life, disempowerment, etc."

"The integration of 'art' into science and health is a good way to explore culture and to tell life's stories."

Group Three, posting on 17/2/09, grappling with Keating's *Men of the West*, again see the painting in terms of their disciplines:

"Genetics – Spanish /Irish link

Nutrition- the subjects looked malnourished

Law – a lawless society?

Physiology- the men look exercised. Although the angle from the hip is wrong !"

This brings us full circle to the point already made above by KR: that "we bring our conceptions and background to a problem."

Finding Coherence in the Work

A challenge identified regarding multiple perspectives is that of finding coherence in the work; in short, of relating the part to the whole. This ultimately begets the view that the whole is greater than the sum of its parts, that integrative learning would create a new interpretation, once coherence was found. Group 1 comments directly on trying to relate the part to the whole in their reading of *They say McEntee was consigned to a boghole near Knocknalossett*, by Dermot Seymour:

"there was a lot going on in the picture ...The picture shows animals, fish, a cow, a seal, human legs in the air not seemingly attached to a body, a torn bag, a gun tower, bleak landscape ..."

They comment in the reflective questions that,

"(It was) difficult to marry all the parts of the picture together, e.g. what was the seal doing there?" (G1: 27/2/09)

Another group points to the challenge of taking on board multiple perspectives and making sense of them:

"Because the work is multidimensional we also found it difficult to identify an entry point into the work at the start. We also felt it was hard to get at the artist's true emotions, because there were so many possible interpretations of the work." (G6: 20/2/09).

The following explorations of Keating's *Men of the West* by Group Three (posting on 17/2/09) also gives rise to discussion re coherence, since the picture gives conflicting messages regarding its west of Ireland or 'wild west' connotations. Interestingly, the group keep returning to the detail of the picture, particularly its clothing and use of colour, to try and draw it together:

"The subjects don't look Irish, though they are very life-like people (faces)."

"(there is a) contradiction with our 'black and white' image of history and these vivid colours."

"We are open to be educated – one group member suggests these belts are very much part of west of Ireland history (the Aran Islands?)"

When the group look at the other pictures around the work they are again confronted with conflicting viewpoints:

"We looked at a video the aftermath of the Easter Rising: Dublin scenes, black and white versus the vivid colour of the painting; Ruins, Very different hats; official military uniform versus a guerrilla uniform (in the picture); not much difference in the faces – moustaches present."

There is an interesting comment that then follows, marked 'aside', which highlights the questioning necessary to integrate another point of view:

"Is there a genetic Spanish influence in the painting? An Ice Age/Spanish Armada link between the west of Ireland and Northern Spain? Could explain the weather beaten look of the men."

THEME 4: IMPLICATIONS FOR TEACHING AND STUDENT LEARNING

Learning in Different Ways

An angle emerging from the exercise is that students learn in different ways, hence,

integrative learning must allow for multiple entry points to learning:

"This (group work) connects very well with the scholarship of teaching and learning (SotL) and the investigation of student learning because it highlights that students interpret and learn in different ways." (KR: 3/4/09)

This point is reinforced by another viewer conscious also of diversity when her own views are conflicting with others in the group. Again, the implications for teaching and learning are not lost:

"This shows me the value of using different approaches and examining something from different angles in that it provides the opportunity to discover and create a vast amount of new knowledge. This variety with which people examine a topic highlights the variety required to teach a topic in order to enhance subsequent learning." (MG: 3/4/09)

Higher Order Thinking

The implications of higher order thinking for integrative learning were also highlighted in some depth by one group:

"We drew on several aspects of higher order thinking in our analysis of the work of art. We had to use our imaginations to interpret the scene before us and try to appreciate the artist's perspective when creating the work. We had to approach the exercise in a systematic manner to ensure we captured every opinion and suggestion so that no potential 'hot lead' would be forgotten ... The whole process was one of imagining a scenario or explanation, expressing an opinion or theory, listening to and reflecting on feedback from others and forming a plausible integrative interpretation of the work of art." (G6: 20/2/09)

The use of imagination, in response to how higher order thinking was used, is also underlined in other postings:

"Putting myself in the minds of the character (or the artist), to try to find out their feelings, thoughts and emotions." (JB: 19/2/09)

Applying These Methods

Ultimately, the hope of this project is that lecturers will be able to apply these methods in their own teaching to promote integrative learning:

"am seriously considering putting a similar session into our first year course- it would depend to some extent on what was on offer in the exhibitions at the pertinent time." (G1: FL 27/2/09)

"This exercise has shown us the value of group work and the value of using a visual stimulus as an aid to free thinking (thinking outside the box) as well as a more mundane application as a memory aid or a means of reviewing a topic. It was also apparent that the exercise helped to build links between different ideas and knowledge areas and so facilitated an integrative learning approach. We also feel that the experienced could help us to develop better assessment approaches as opposed to the conventional, exam – orientated approaches which we rely on so heavily." (G6 20/2/09)

"There is the potential to use suitable media in context to illustrate sport and activity." (G3: 19/2/09)

It is clear above that there are many implications for integrative learning across the disciplines. I will let it to the 'Big Blog' posting of Group Six to summarise these implications:

"We could certainly apply the protocol, at least in parts. The interpretation of a visual image provided a great basis for a free flow of ideas which could be applied to assess students' initial knowledge of a subject at the start of a series of lectures. The free flow of ideas could also be the basis for 'thinking outside the box'. Additionally, it could be used as a revision aid where the visual image is used to construct a mind map of some sort. After a while, we found ourselves becoming methodical in the interpretation of the visual images and this methodology can be equally applied in our disciplines of engineering, anatomy and ecology." (G6: 20/2/09)

THEME 5: EMERGING METAPHORS THAT GIVE CLUES TO THE NATURE OF INTEGRATIVE LEARNING

Finally, in terms of broader significance, a number of metaphors occur in the responses to the generic questions asked regarding the paintings. These speak for themselves and often overlap, for they are ultimately commenting on the same process: the nature of learning, including integrative learning:

The 'Hidden'

G1: *"(we learned) not to judge a book by its cover."* (27/2/09)

G3: *"(we learned that) there's a problem with jumping to conclusions."* (17/2/09)

G6: *"As a group we learned that things are not always what they seem on the surface. We felt that much of the structure and meaning of the work was revealed by discussion, compared to the individual ideas which we formed on our own. We also learned that first impressions can be deceiving and that our emotional response to the work changed as we studied it closer and discussed it further."* (20/2/09)

The 'Puzzle'

G6: *"Overall, interpreting the work is like trying to solve a puzzle- it takes time and not everything is apparent at first glance, with many insights only becoming clear after interaction with other group members."* (22/2/09)

G6: *"we treated the exercise as a group project to uncover the hidden meaning of the puzzle."* (20/2/09)

G3: *"one looks for clues and a starting point, then tries to find evidence to develop a story /solve a problem."* (17/2/09)

'Fast' and 'Slow' Time

"We realised that we all tended to make a very fast decision on whether we liked a piece of art or not and then move on to another item in a frantic "tour of the Louvre in one day" approach. The exercise forced us to slow down and spend an appreciable time concentrating on one piece of art. We realised that we connected much better with the work of art when we spent time on it and we could appreciate its value to a greater extent." (G6: 20/2/09)

The broader significance of these findings rests in their focus, in particular, of the group context as a way of promoting integrative learning:

"The fact that we didn't know 'the right answer' at the start of the discussions, put us in the frame of mind of the students and what it must be like to tease out the meaning of some of the complex problems in our own disciplines which we take for granted. Finally, we could see the value in continually reflecting on our thoughts and the processes which led to them". (G6: 20/2/09)

Equally, the broader significance lies in finding spaces, like the gallery, where we can bring our students, in this case, my colleagues, to where we can begin again – for research begets the iterative and it is often best to start where there is an open space – a clearing. Such spaces can also be found online where colleagues find the virtual space to record and share their thinking, a process central to this study.

CONDITIONS FOR DOING SOTL

What emerges above is that we have to create opportunities to fulfil the conditions for SoTL in our everyday working lives as teachers and learners in the university. There are no ideal conditions, there is no 'ivory tower' to which we can retire, despite the stereotypical view of us still presented in the media. There are the daily classroom spaces, the in – between spaces, talked of by my colleague James Cronin, that constitute the coffee break, the common room and there is the 'chat room'/ discussion forum/blog space of the Blackboard and other VLE sites. And there is the magical, creative space of the gallery, or the theatre, or the concert hall, or the drama workshop, where teaching and learning is transformed again and undergoes another iteration, captured in the group documentation above, that opens itself up to research and critique.

LESSONS LEARNED

If I were starting again, I would focus the postings only on the reflective questions – too many questions can be overwhelming for even the most enthusiastic participants! But this project has convinced me further of the importance of the arts in education as a catalyst for integrative learning and of the necessity of finding a new space, sometimes, so that the conversations documented here can happen. In theory, integrative learning can come across as a seamless process: disciplines blend and draw from each other, there are key questions that cut across several fields, there is teamwork from which coherent, integrated perspectives emerge and, when we work alone, we carry with us that open – minded attitude that builds capacity to harness learning from the multiple sources that inform the project in hand. In practice, however, to make integrative learning happen is quite a challenge. The visit to the Glucksman Gallery has taught me new ways of recognising integrative learning, for its multiple signs are buried deep in the rich synergy of a focused task undertaken by dedicated groups in a creative space. There is much yet for me to unpack in this story of integrative learning, for I have not yet examined the evidence emerging from the drama workshop, so that I can harness and integrate it with the findings above. But what I have learned is that integrative learning must start with the recognition of the perspective of the other – only then can we begin to move towards the creation of something new: an integrated perspective, a new direction.

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ASSESSING THE ROLE OF INTEGRATED LEARNING IN THE BSc INTERNATIONAL FIELD GEOSCIENCES (IFG) AT UNIVERSITY COLLEGE CORK, IRELAND

Pat Meere

CONTEXT

The Department of Geology at University College Cork (UCC) launched a new BSc in International Field Geosciences (IFG) in autumn 2008. In this programme, superb natural field geoscience laboratories, available in Europe and the western United States, are utilised as learning environments, forming the basis for a joint Bachelor of Science undergraduate degree. The programme focuses on the documentation, interpretation, and synthesis of critical geological issues in the field. It rests upon a backbone of existing modules that are the foundation of current geology curricula at three partner institutions (University College Cork, Ireland, The University of Potsdam [UP], Germany, and The University of Montana [UM] USA), complemented by an emphasis on the development of field-based learning in an intercultural setting. The core curriculum is identical to that required for the existing BSc Geology at UCC except that the third year (sixty credits) is spent abroad at UM while twenty credits are taken at UP at the start of the fourth year. The mobility component of the programme is funded as part of a joint EU/US ATLANTIS project, with the aim of supporting international curriculum development.

Geoscience – the science of the Earth – directly involves the study of natural geological processes and environmental phenomena that shape the Earth through space and time. These global processes cross all socio-economic borders and directly affect all of Earth's inhabitants. As the current generation of students will face enormous future environmental challenges, that are inherently global in scope, modern geoscience undergraduate education ideally requires an international perspective. The motivation for the new programme was primarily driven by the growing international demand for geoscientists with *integrated* field skills.

However, over the last two decades existing geoscience programmes in Europe and the US have tended to progressively reduce their field-based learning components. One of the major reasons for this neglect is the increasing cost associated with physically transporting students into the field and maintaining a safe outdoor working environment. In the last few decades health and safety considerations in an increasingly litigious society have led to a decrease in choice of suitable field areas. Lastly, recent technological advances, such as Geographic Information Systems (GIS), and various forms of remote sensing have led to new ways of analysing geospatial data that, while certainly useful, divert the attention of the geoscience community away from collecting 'ground truth' data and making direct observations in the field.

This overall trend has not gone unnoticed by employers of geoscientists who, despite the overall reduction in field-based learning, increasingly place greater store on these experiences in geoscientist training programs. As a result, industry recruiters seeking to hire students view with favour those whose training has involved significant field-based learning. Field-oriented students are more 'familiar with the rocks', are better able to make accurate predictions of new and unproven geologic systems, and are more valuable in the marketplace. Similarly, graduates entering the environmental industry without substantial time in the field are less well able to, for example, design efficient pollution remediation systems than students whose undergraduate education includes field-based topics. It is now well established that field training programs equip students with a valuable suite of transferable skills that critically include the fostering of self reliance, personal initiative and independent thinking. An effective field programme will encourage students to pull together multiple facets of their prior learning, and challenge them to build a new robust understanding in the

discipline. A recent quote from an industry insider (Ian Sharp, the Chief Geology Researcher at StatoilHydro) in Butler (2009, p. 8) illustrates the growing importance industry is placing on field based learning:

"The industry perspective is clear - the skill to visualise, think and sketch models in 3D gained from field work is absolutely invaluable - if you don't have this then it does not matter how good you are at producing nice attribute images from seismic [remotely-sensed] data - if you do not know what you are looking for (i.e. what the geological element/geo-body looks like) you cannot find it".

These worldwide trends have led us to place a very strong emphasis on field-based learning in the BSc IFG joint degree programme. To undergraduate students of geoscience, field-based learning is a powerful means of optimising skill-sets involved in the analysis of phenomena that shape the Earth. We believe that substantial time in the field helps build students' capacities to be integrative thinkers and learners, because it:

- (1) Allows students to make their own conceptual connections and adopt a problem solving approach that requires them to draw on and integrate various sub-disciplines in the geosciences.
- (2) Provides students with direct access to their study subject (the Earth) and so allows authentic practice.
- (3) Provides opportunities for students to acquire 3D visualisation of geological structures and relationships, a threshold concept in geoscience.
- (4) Offers students an opportunity to take ownership and responsibility for their own learning experience.
- (5) Offers greater opportunity for students to show personal learning initiative.
- (6) Raises awareness and enhances student appreciation for environmental issues and the complexity and uncertainty of feedback mechanisms.
- (7) Enhances generic scientific investigative skills, and subject-specific research skills.
- (8) Enhances personal development, through increased self-reliance, self confidence and team-building.
- (9) Promotes deeper learning through direct experience and complete immersion.

These benefits as outlined above are supported by recent pedagogic research (e.g. Boyle *et al*, 2007; Butler, 2009) where quantifiable feedback from students clearly underscores the merits of field-based learning. To add to this, we see the field experience as the place where students are challenged to bring together their prior knowledge to build a new and more robust understanding, which is greater than the sum of the parts.

The students involved in the IGF will also be exposed to differing educational philosophies over the course of their three year programme. Students primarily based in Ireland will spend one year at the University of Montana where they will be exposed to a liberal arts tradition, a tradition that has at its heart the idea that learning should be greater than the sum of its parts (Huber and Hutchings, 2004). This programme offers the opportunity to assess the effectiveness of both the European and US traditions in the context of field-based learning. In addition, because of the global scope, professional Geoscientists will have an advantage if their formal education provides a venue for understanding the subtleties of other cultures and peoples from different backgrounds. With exposure to cultural differences and a broader understanding of global issues, geoscience students are better able to contribute to decisions involving the environment and its evolution at governmental, industry and scientific levels.

THE INQUIRY

The question at the heart of this enquiry is ‘focusing on both the cognitive and affective domain, how can we assess the success of the integrative learning opportunities provided on the IFG programme?’ We will use a variety of means to collect evidence of student integrative learning.

GATHERING THE EVIDENCE

The programme is in its second year. We have used a variety of tools to assess the level of impact of the integrative learning opportunities afforded by the programme, and have focused on both the cognitive and affective domains. Cognitive activities are concerned with the direct processing of information and subsequent construction of meaning, while the affective domain is related to processes that are concerned with the learner’s emotional response (feelings and attitude) to learning. In the case of the former, it is difficult at this stage to directly measure the impact integrated learning in a field setting has on overall achievement. Kern and Carpenter (1984) attempted this by splitting and comparing a class where half were exposed to field-based learning and half to only classroom-based learning. These results indicated that a definite advantage is conferred on students with field-based learning experiences. However, a later study with a significantly larger data set by Fuller *et al* (2003) did not identify specific advantages with field-based learning. It would now be considered unethical to deliberately deprive students of field-based learning for the purpose of experiment. By looking at the effect of field-based learning in the affective domain, the current study will assume that fieldwork has advantages over classroom-based learning if it elicits a ‘positive response’ from participating students.

(a) Evidence from the Cognitive Domain

1. **Use of pre- and post-mobilisation assessments:** this approach involved the students carrying out a controlled field mapping exercise before and after mobility in an attempt to assess the added value of the field experience amassed while based at the University of Montana. A site was selected on the Beara Peninsula, West Cork, to conduct these field-based assessments. In the pre-mobility assessment the students were asked to map the geology of a 1 km² area ‘cold’; they were given no background information or documents on the area except for the appropriate base map. The exercise was conducted over the course of a day, with each student conducting a short taped interview at the end of the exercise to discuss their day’s experiences. The work produced by the students was assessed using the conventional measures. During the post-exercise interview emphasis was placed on determining how students problem solve in the field and how they integrate the various sub-disciplines of geology to tackle these problems. Gathering evidence for interdisciplinarity and integrative learning was carried out as obliquely as possible as the use of direct questions on this aspect of their work might introduce an element of ‘leading’ the students which might in turn bias the outcomes. The post mobility exercise has a similar format and is conducted in the same area but students are assigned different 1 km² blocks. The post mobility interviews attempt to assess the students’ own perception of the impact of the integrated international field experiences.
2. **Longitudinal survey:** comparison of the performance of mobilised (IFG) and non-mobilised (UCC-based) students in second and fourth year programmes will be undertaken. Results from this analysis will be ‘normalised’ across mobilised and non-mobilised students relative to common second year and fourth year performance with particular emphasis placed on modules with a high component of field work

(b) Evidence from the Affective Domain

1. **Interviews with students prior to and after mobilisation:** these interviews attempted to tease out the student's own progress with regards to integrative learning, how connections were made, challenges faced, and strategies developed to try and overcome any problems. This process is unique for each student and overcomes the 'gaps' that might occur using generic surveys. It is critical that the students' thought processes be made visible (Mansilla, 2005) through in-depth interviews.
2. **Student generic questionnaires pre- to and post-mobilisation:** this will enable analysis of changes in student attitudes and perceptions brought about as a result of the field experiences in the US. The questionnaires consist of a combination of Likert-scale, ranking, and free form text entry (see Appendix 1). The pre-mobility questionnaire is structured in a more anticipatory manner while the questions in the post-mobility document are more reflective in tone.
3. **Each student is required to keep a reflective e-portfolio during their mobility year:** this has the advantage of allowing- students to assemble a wide range of media, text, graphics, video etc. (Flower, 2005). In addition, it potentially makes this material accessible to a wide range of viewers including instructors and fellow students.
4. **Each student is encouraged to participate in a blog:** this (<http://ifgucc.blogspot.com/>) deals with the UCC student experience while at the University of Montana.
5. **Evaluator interviews with focus groups:** consisting of each class of mobilised students.

A key issue to be addressed in this evaluation process is the necessity to distinguish the 'added value' the students will directly acquire from the field-based learning experience from other possible learning opportunities.

INITIAL RESULTS

The first four UCC students in the IFG programme began their mobility phase in August 2009. Before departing for the US they conducted a field exercise and completed a pre-mobility questionnaire.

(a) Pre-mobility Field Exercise Interviews

The first cohort of IFG students carried out a mapping field exercise in the Ballycrovane area of the Beara Peninsula in June 2009. A number of themes emerged from the subsequent short recorded interviews conducted within a week of completing the exercise:

- (1) There was a consensus that field-based studies offer a wonderful opportunity to take a more 'holistic' approach to studying geology. There was an increased awareness that geology is very much a multidisciplinary pursuit and that field work helps bring the various sub-disciplines together in a single learning environment.
- (2) The students, while recognising the benefit of integrating various sub-disciplines of geology while carrying out the exercise, at times found this difficult to put into practise. It was felt that improvement in this area

could only come with increased experience and 'field hours'. This in turn would lead to increased confidence and a more positive attitude to tackling problems encountered in the field.

- (3) A number of students commented that the exercise allowed them to 'take stock' of their current level of knowledge, identify strengths and more critically, weaknesses. This provided a motivation to address these 'knowledge gaps' at a later date.
- (4) The students enjoyed the problem solving aspects of the exercise.
- (5) A number of the students had difficulty in seeing what was described as the 'bigger picture'. There seemed to be an issue in relating features observed at a small exposure scale with larger scale features, e.g. sedimentological and structural.
- (6) There was a recognition that dealing with 'real life' 3-D geological features helped students gain a deeper understanding of the processes involved in the formation of these features which in turn led to a better retention of this knowledge.

(b) Pre-mobility Questionnaire

The first cohort of IFG students were surveyed before travelling to the US in late-summer 2009. The first thing that stands out when looking at the responses is the already established positive attitude to field work demonstrated by the students before they start their mobility phase of study. It was made clear by the students that the field experience acquired in years one and two at UCC had convinced them of the benefits of field-based study. In the areas of student knowledge, social/personal benefits and student enjoyment/motivation all students consistently scored at the highest positive levels for the various questions under these categories. Direct statements from students supporting this positive attitude to field studies included:

"Geology is a practical subject and I feel to be a good geologist you need to develop the ability to apply what you have learned in the classroom to the natural environment as this really helps you to understand what is happening."

"In geology, one simply could not grasp the topics covered without fieldwork. Fieldwork is a vital learning tool. Fieldwork puts into practice the concepts the student covers in class and this brings the knowledge from the classroom forward to the front of your mind and helps you to connect better with the information you have learned in class."

"When in the field you can put together everything that has been said in class and you can really see how the different subjects within geology all have their parts to play in understanding the outcrops you are looking at. Personally I think seeing it first hand in real life will stay with you longer than looking at a picture in a book."

"Being able to participate in field experience gives me a better insight into the materials being covered in class. It allows me to take what I learn in class and be able to visualise it in real circumstances. Being in the field will be of great benefit to me as I will be able to refer back to my own experiences which in turn will make it easier for me to remember certain aspects of course material."

However when the responses were analysed further, it was interesting to note that when asked about their feelings before embarking on fieldwork that three of the four students surveyed ranked 'lacking confidence' in the top three of possible emotional states.

The new IGF programme is still in its early stages. It has been useful to think ahead about evaluation of the programme in terms of building students' integrative learning capacities. As the data base grows in the coming years, it will be possible to track changes not only in student 'confidence' levels but also in the added value to students' holistic understanding, arising from a greater emphasis of the IGF programme on field-based learning.

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APPENDIX A

The Student View of Fieldwork BSc International Field Geosciences

Pre-Field Work Questionnaire

1. Core Data

- a) Identifier b) Your age at 1st Sept 2009 _____ years
- c) Gender Male Female
- e) What is the title of your degree programme? International Field Geosciences
- f) Have you been on an overnight field course before (either with school or university)?
Yes No
- i) Do you have any idea what career you would like to follow?
Yes No

2. Why did you choose this programme?

Place numbers in the boxes to rank in order of importance (1 being most important)

Best subject at school	Interested in subject
Future career	Location of the university
Subject includes fieldwork	Personal recommendation
Other	specify _____

3. If you have been on fieldwork before what was your most memorable fieldwork experience?

4. Which three of the following descriptions best describes your feelings when embarking on fieldwork? Rank the three that best suit your feelings (1 = best reflection of your feelings).

Apprehensive		eagerly anticipate	
Concerned		relaxed	
Lacking confidence		happy	
Don't want to go		indifferent	
Don't know what to expect		confident about what is expected	

5. Knowledge

Using the 5 point scale below circle the number which best reflects how far you agree with these statements, (score by using the scale 1 if you totally disagree, through 3 neutral, to 5 totally agree):

Fieldwork has increased my overall knowledge of my degree subject.

1	2	3	4	5
totally disagree		neutral		totally agree

Field experience of themes/topics studied in class makes it easier to understand them.

1	2	3	4	5
totally disagree		neutral		totally agree

Fieldwork gives me an opportunity to integrate the different sub-disciplines of geology.

1	2	3	4	5
totally disagree		neutral		totally agree

Fieldwork gives me a chance to develop my problem solving skills.

1	2	3	4	5
totally disagree		neutral		totally agree

Fieldwork helps me better retain knowledge over longer periods.

1	2	3	4	5
totally disagree		neutral		totally agree

Field based learning can be ineffectual due to lack of provision of proper context.

1	2	3	4	5
totally disagree		neutral		totally agree

Field based learning can be ineffectual due to use of inappropriate field areas.

1	2	3	4	5
totally disagree		neutral		totally agree

6. Social/personal benefits of the fieldwork

Using the smiley faces circle the one which best reflects how you feel about the following (☺ positive, 😐 neutral, ☹ negative).

	positive	neutral	negative
getting to know the staff	☺	😐	☹
• getting to know the other students on the course	☺	😐	☹
• meeting people from a local community	☺	😐	☹
• enhancing self reliance	☺	😐	☹

- working all day in outdoors ☺ ☹ ☹
- coping with physical challenges ☺ ☹ ☹
- achieving the academic demands of the work ☺ ☹ ☹

7. Student Collaboration/Enjoyment and Motivation

Using the smiley faces circle the one which best describes your feelings about the following
(☺ agree, ☹ neutral, ☹ disagree)

	agree	neutral	disagree
Fieldwork is an activity I enjoy	☺	☹	☹
Fieldwork challenges me academically	☺	☹	☹
Fieldwork is a very valuable aspect of my degree subject	☺	☹	☹
The more fieldwork I undertake the more interesting the work becomes to me	☺	☹	☹
I enjoy working in a group	☺	☹	☹
I feel confident in being able to work with others	☺	☹	☹
I use colleagues as an information source	☺	☹	☹
I trust the contributions of my group/peers/mates when completing group work	☺	☹	☹
I would always check the group's answer and if I thought it was incorrect I would manipulate the data	☺	☹	☹
I sometimes lose interest in the work because of the weather	☺	☹	☹
Fieldwork is not an activity I particularly enjoy	☺	☹	☹
I have always had good fieldwork experiences	☺	☹	☹
I would not recommend fieldwork to others	☺	☹	☹

9. Do you believe that fieldwork offers the student a unique learning experience? Why?

10. What do you hope to get out of future fieldwork?

11. Any other comments?

THE CONFLUENCE OF PROFESSIONAL LEGAL TRAINING, ICT AND LANGUAGE LEARNING TOWARDS THE CONSTRUCTION OF INTEGRATIVE TEACHING AND LEARNING

Maura Butler

CONTEXT

The Irish Language

The native Irish language, *Gaeilge*, is referred to in the Irish Constitution as “*the first language of the State*”. It became an official and working language of the European Union on 1 January 2007.

The Irish Language and Lawyer Training from 1898 to 2008

The Solicitors (Ireland) Act 1898, The Legal Practitioners (Qualification) Act 1929 and The Solicitors Act 1954 required entrants into both legal professions in Ireland, (solicitors and barristers) to pass written and oral Irish language exams, colloquially referred to as the First Irish and Second Irish exams. These exams purported to secure that persons who passed them had a competent knowledge of the Irish Language i.e. “*such a degree of oral and written proficiency in the use of the language as is sufficient to enable a legal practitioner efficiently to receive instructions, to advise clients, to examine witnesses and to follow proceedings in the Irish Language*”. However, the reality was that these exams were not based on legal texts or terminology, a matter of concern for the presiding government which fostered a robust policy on bilingualism. As a consequence, they brought the Legal Practitioners (Irish Language) Act 2008 (the 2008 Act) into force.

New Law means a New Course

The implementation of the 2008 Act resulted in the development in the Law Society of Ireland (Law Society) Education Department (Law School) of an elementary Legal Practice Irish (LPI) course. Approximately 600 trainee solicitors (trainees) took this professional training during their Professional Practice Course (PPC). The design and delivery of that LPI course is the subject of this paper which examines the coming together of diverse disciplines of Professional Legal Training, ICT and Language Learning.

The desired learning outcomes prescribed by the 2008 Act were that all trainees should be in a position to:

- Meet and greet clients as *Gaeilge* (in Irish);
- Identify Gaelic terminology for various legal procedures; and
- Have a capacity to refer those clients to a solicitor who practises his/her legal practice skills through the Irish language.

CREATING AND IDENTIFYING TASKS FOR A MULTI-DISCIPLINARY COURSE DESIGN TEAM

The design team was a cross-disciplinary combination of a lawyer (the author), an Irish language consultant, an Information Technology (IT) consultant and other in-house personnel in the Law School. (See Appendix, Illustration 2).

The author is a solicitor with eleven years general practice experience, eight years experience as a lecturer in an academic environment, and ten years as a Course Manager designing and delivering legal training modules in the Law School. She had also completed an MSc in Information Technology

(IT) in Education. The expertise that she therefore brought to the project centred on the interpretation of the requirements of the 2008 Act, the design of the legal materials that would be the bedrock of the legal terminology learning and an understanding of the capacity of ICT in facilitating Teaching and Learning. The initial question was whether the Law School's Virtual Learning Environment (VLE) could engineer a version of that resource *as Gaeilge*. She decided that she would take a two-week residential course in *Gaeilge* at the Acadamh na hOllscolaíochta Gaeilge (Irish Language Centre, NUI, Galway), to integrate her knowledge for this project.

The Language Consultant, Kevin O'Hara, is also a psychologist. He understood that there would be psychological barriers for trainees taking this course. He recognised that legal terminology in English differs from Standard English and that similarly, legal terminology in Irish differs from standard Irish. He would have been familiar with and delivered traditional teaching methods in large and small groups. He agreed to translate materials and to deliver the course lectures at the beginning and end of the course. He clearly outlined the needs of the language student who needed to 'See, Hear and Speak the Language'. He identified that the challenge for IT was to deliver an online version that could produce the same outcomes.

The Head of IT in the Law School, Caroline Kennedy, managed the Law School's VLE and all other IT needs of staff and students. She was at that time also a second year student on an MSc in Technology and Learning programme which was the new version of the MSc taken by the author in 2004. She therefore had an expertise in how Information Communication Technology (ICT) could assist in the delivery of teaching and learning. Caroline was in a position to explore and identify the IT software that was necessary to deliver the needs of the Course Manager and the Language Consultant. She was also in a position to interpret the course needs from an IT perspective to facilitate its communication to the commercial providers of the Law School's VLE.

Another staff member, Alison Egan, was a year one student of the MSc in Technology and Learning. She had demonstrable IT skills. She needed a research project as part of those studies and was therefore invited by the Course Manager to join the LPI Team in her IT capacity and to use that experience as the subject matter of her Meta Thesis. Two other staff members joined the team: Anne Walsh, who had experience in IT systems; and Maritta Moran, who is an Irish speaker; both agreed to do some research for the project. Thus a wealth of expertise came together with the explicit intention to integrate their expertise and experience with the aim to deliver a multi-disciplined model of learning to model a *"thoughtful approach to learning they want[ed] their students to develop"* (Huber and Hutchings, 2004, p. 9).

THE TEACHING AND LEARNING THEORY BEHIND THE COURSE DESIGN

The 'blended learning' design embraced integrated ICT and Computer Assisted Language Learning (CALL) with traditional teaching methods, using Problem Based Learning (PBL) that addresses general legal practice issues across varied courses (see Appendix Illustrations 1, 3 and 4) embedded in an open source Learning Management System (LMS) Moodle (see Appendix, Illustration 5).

In discussing blended learning as an approach it has been suggested that online delivery should not act as a 'stand alone' or replacement for traditional lectures, nor is it to be seen as adequate alternative modes of delivery. Rather, they need to be *"carefully integrated into a student's learning spectrum, and exploited for their demonstrated merits, while still being*

supplemented with established interpersonal factors to overcome some of their notable shortcomings" (O'Toole and Absalom, 2003, p. 189). However, Cunliffe and Harries (2005), who studied the promotion of Welsh and minority language usage in a bilingual online community, found, in fact, that a willingness to embrace technology has contributed to the survival of the Welsh language (pp. 157-179). Facilitating student development as active independent learners requires a consideration, not only of the diverse contexts and needs of students, but also of emerging potential resources and strategies. These include forms of collaborative and peer group learning mediated through new information technologies.

Holmes, Tangney and Savage (2002) argue that *"ICT is good at supporting...a constructivist approach to learning; support for self-motivated learners; flexibility in assessment; problem oriented; and project based learning dealing with real life scenarios"* (200, p. 12). The British and Irish Legal Technology Association (B.I.L.E.T.A.) inquiry into Law Schools' Provision of IT found a desire *"to overcome 'technophobia' and to enable an analytical approach to IT problems"* (Duncan, 1992, p. 47). The report *"...identifies models of legal education and suggests the IT applications which fit each most effectively.....The 'Pedagogic Model' suggests scope for computer assisted learning and expert systems programmes and legal databases"* (Duncan, 1992, p. 47).

Problem Based Learning (PBL) is embedded in the professional training of solicitors. The creation of real life legal practice situations through PBL methodologies facilitates constructivist theories and the self-motivational characteristics of the adult learner. *"Constructivism [as a learning theory] stresses that all knowledge is context bound and that individuals make personal meaning of their learning experiences"* (Knowles, Houlton III and Swanson, 1998, p. 142). Learning through active learning is required to learn from reflection upon the experiential cycle of the actions undertaken thereby constructing student knowledge and skills in a self-motivated and autonomous fashion.

BRINGING THE LEARNING THEORY 'BACK HOME'

This course, which drew together Professional Legal Training and Language Learning through ICT, was the first of its kind for the Law School's in-house Virtual Learning Environment (VLE) system.

The Course Manager created course materials across general practice disciplines and integrated different areas of legal practice that would ordinarily merge in a real world environment, for example, conveyancing was integrated with Family Law, Criminal Litigation with Civil Litigation, and so on. The materials manifested as Problem Based Scenarios of initial solicitor/client consultations, thereby fulfilling the requirements of the 2008 Act. Quizzes, questionnaires and discussion questions explored key legal terminology of each of the selected areas of law. Some background information was compiled to support necessary research to answer the issues raised in the quizzes, questionnaires and discussion questions. All of these resources were then translated by the Irish Language Consultant.

Research had revealed that resources that demonstrated best practice in Gaelic translation for the legal terminology phrases could be readily accessed on <http://www.focal.ie> (see Appendix Illustration 1). The Focal.ie website and its development demonstrate the existence of the integration of best practice in the provision of a national terminology database for the Irish language. *Fiontar*, a school at Dublin City University that operates undergraduate and postgraduate programmes entirely through the medium of Irish, manages and develops this resource in collaboration with the funders and content owners, Foras na Gaeilge,¹ through their Terminology Committee. Development of legal terminology for Irish is a strand of another project in *Fiontar* funded by the Dept of Community, Rural and Gaeltacht Affairs, under which their main commitment is to provide terminology for the

1 Foras na Gaeilge is the body responsible for the promotion of the Irish language throughout the whole island of Ireland

EU institutions. It was agreed with Foras na Gaeilge that new terms created for this purpose, including legal terms were recorded by focal.ie, with Foras consent. *Fiontar* develops resources for legal terminology for Irish and cooperates in this regard with Rannóg an Aistriúcháin (The Dáil Translators) regarding the inclusion of their terms as an auxiliary glossary on focal.ie, which appears at the bottom of each list of results when a search is entered in focal.ie. Rannóg an Aistriúcháin manages the updating of this resource on focal.ie.

The software providers in consultation with the IT Manager augmented the available VLE technology called Moodle² by creating a *Gaeilge* web page (see Appendix, Illustration 5 (ii)) thus making this resource bilingual for the first time. The podcast recordings of the problem based scenarios were supported by the IT Manager and recorded by lawyers and or non-lawyers who had Irish language skills and who were either in-house staff members or members of the Associate Faculty.

Core glossary terms were created on-line by one member of the team, Alison Egan, and uploaded in two modalities, visually and aurally, by reference to terminology identified through www.focal.ie and Course Instructor resources. She subsequently completed a paper based on her work on the LPI project (and as part of the requirements for the completion of her Masters) in October 2008 entitled *The Impact of an Online Glossary to the Learning of Legal Irish within a Virtual Learning Environment*. She cites Jameson *et al* (2006, pp. 949-967) who state that if materials are well designed the potential of e-learning to satisfy different learning styles and greater cognitive development may be significant. She went on to conclude that the structure of the team designing the LPI course ensured the formation of such a community of practice, leading to best practice.

The IT tools employed included Audacity, Podcasting, and Mp3 files, Php/My Sql for questionnaires, and Macromedia/Adobe Flash and iSpring converter for flash upload to Moodle.

FRAMING THE QUESTION

Incorporating some Anticipated Obstacles in Course Delivery into the Course Design

There were some realities that presented obstacles to an optimum learning environment that had to be accepted by the LPI course design team. These realities were:

- It was generally accepted that the majority of the trainees were likely to harbour a negative perception of the native language as a consequence of their learning experiences of it in junior and secondary school.
- There was likely to be a negative reaction to the replacement of the old exam structure exam by a compulsory attendance requirement as outlined in the 2008 Act. Some of the trainees would have successfully passed the First Irish exam under the old system and paid the relevant non-refundable fee and had an expectation of sitting a similar Second Irish exam. This 'partial success' and anticipated outcome was now irrelevant in the context of the new legislation.
- There would be a diversity of Professional Practice Course (PPC) trainees with mixed abilities, some of whom were foreign nationals who had not previously studied the Irish language.

1
2

Foras na Gaeilge is the body responsible for the promotion of the Irish language throughout the whole island of Ireland
Moodle is a free software e-learning platform (also known as a Course Management System (CMS), or Learning Management Systems (LMS), or Virtual Learning Environment (VLE)). Moodle is designed to help educators create online courses with opportunities for rich interaction. Its open source license and modular design means that people can develop additional functionality. Development is undertaken by a globally diffused network of commercial and non-commercial users, streamlined by the Moodle company based in Perth, Western Australia.

- The traditional teaching contact hours available in the overall timetable incorporating core lawyer training was restricted to four and a half hours which was completely inadequate in achieving the desired learning outcomes of the 2008 Act. This allocation could only scaffold the course design by positioning it. It demanded an ICT solution.

The author was keen to ascertain if the collaboration of the members of the LPI team in designing and delivering the blended learning model had in any way engineered a solution to the obstacles identified and whether there had been a construction of Integrative Teaching and Learning during this process. The question therefore arose: *'Has the scaffolding provided by a community of educators through ICT counteracted the barriers present due to its mandatory nature and previous negative Irish language learning experiences, resulted the fostering of intentional integrative teaching and learning?'*

GATHERING THE EVIDENCE

Preliminary baseline questionnaires gathered quantitative and qualitative data on language competency and IT capabilities that provided an entry point for identifying focus groups that were representative of varied abilities. End of course evaluation questionnaires harnessed reflection from the course participants on whether the prescriptive learning outcomes were achieved through an interdisciplinary blended methodology. Interviews were conducted and recorded with the focus groups providing space for testing and reflecting on the learning achieved through ICT. Reflection at course end as also sought from the multi-disciplinary course design team.

EMERGENT FINDINGS AND BROADER SIGNIFICANCE

Course Entry Data Questionnaires

Quantitative Data

The IT Capabilities Questionnaire with 471 responses to defined questions at course entry point indicated that:

- 16% of trainees had engaged previously in an on-line course, 22% had previously downloaded a podcast, 87% had access to a podcast outside Law School hours and 77% had internet access outside those hours.

Qualitative Data

- In the 'any other comments' section of this questionnaire, there were twenty-one individually expressed concerns about not having remote internet access to Moodle. Eight respondents were concerned about their ability to have the requisite IT skills, two said they would prefer the old legislation methods (Second Irish Exam), a number took the space to rant about the general timetable, and one wanted an assurance that her/his particular Irish Language dialect would be accommodated in the course!
- The course entry point Language Competency questionnaire answered by 529 students indicated that for 1% of them, Irish was their first language.
- When asked to rate their levels of Irish in terms of being 'very poor' the following percentages were recorded: 12% (spoken), 16% (written) 11% (aural) and 10% (reading).
- Those who rated themselves as 'poor' in standard were 27% (spoken), 27% (written) 22% (aural) and 19% (reading).
- Between 40-49% rated themselves as average across those respective categories.

Those who believed they were above average were from 13-19% of the class, with the lower percentile registering for written Irish and the higher one for aural and reading skills.

- Those who considered themselves fluent ranged from 2-4% of the class where again the lower percentile referred to written skills, with reading and spoken on 3%.
- 84% had studied Irish at Primary and Secondary level and 5% had never studied it.

End of Course Data-Questionnaires

Quantitative data

Eighty-eight trainees responded to an end of course evaluation questionnaire that revealed as follows:

- The initial reaction to taking a blended learning course was one of anxiousness for 44% but this anxiousness appears to have been mitigated by the fact that 81% agreed that the course workshop which aimed to demonstrate the navigation of the LPI website, achieved its objective.
- 77% agreed that the website aspect of the course was user-friendly, 55% agreed that the on-line podcasts were helpful with their pronunciation whilst 25% did not.
- 51% believed that the Language Lab facility benefited their conversational legal terminology and 29% disagreed.
- The weekly release of materials was favourably regarded by 60% as setting a manageable pace for learning and 17% did not agree that it did so.
- 71% believed that the consistency in the format of the weekly material release on line assisted their expectation of course outcomes and 9% did not so believe.
- 58% agreed and just 16% disagreed that their interaction with online materials assisted their interaction during the Discussion Session contact hours.
- 56% expressed enjoyment with the engagement with a fellow student as they practiced their pronunciation as they recorded their podcast onto the laptops in the language lab but 16% did not enjoy this aspect of the course.
- 83% agreed and 6% disagreed that the course materials were reflective of solicitor client interaction in the real world.
- 71% saw real connections between areas of practice that are taught as discreet areas during PPCI but were amalgamated during the LPI course whereas 8% were unable to experience those connections.
- The bilingual interface of the course website made the necessary connections for 81% of the responses, it was not applicable to the 1% native speakers and 7% disagreed.
- There was a 66% approval rating for the 'one stop shop learning

experience' background information section which linked directly to legal sources associated with the topic at hand.

- In asking the question 'Please indicate the degree to which your attitude to the Irish Language has changed (if at all) due to your participation in the LPI course' the responses were as follows: significant change: 9%; some change: 39%; little change: 15%; no Change: 38%.
- A comparison between self assessment of standards of spoken, aural and reading skills at course end indicated that 40% were aware of change and of that significant change was recorded as follows: spoken Irish: 5%; aural Irish: 3%; reading Irish: 6%.
 - ✓ Those who had considered themselves very poor across spoken, aural and reading skills had decreased respectively by 2%, 3% and 1%.
 - ✓ Those who had considered themselves poor across spoken, aural and reading skills had decreased respectively by 12%, 10% and 11%.
 - ✓ Those who had considered themselves average across spoken, aural and reading skills had increased respectively by 11%, 5% and 3%
 - ✓ Those who had considered themselves above average across spoken, aural and reading skills had increased respectively by 2%, 7% and 6%
 - ✓ Those who had considered themselves Fluent/Native Speaker across spoken, aural and reading skills had logically remained the same for spoken Irish had decreased by 1% regarding aural Irish and had increased 2% in reading skills.
 - Questions twenty-four and twenty-five asked for ratings with regard to the course having met the objectives as set down by the 2008 Act regarding being able to greet a client and use of relevant legal terminology. 92% and 76% respectively felt that those statutory requirements were met.
 - 90% at question twenty-six stated that LPI had met its objectives in terms of its stated learning outcomes.
 - 66% agreed and 14% disagreed that there was enough time allocated to the course.
 - 59% agreed that the combination of four and a half class contact hours and flexible on-line hours worked; 23% disagreed.

Qualitative Data

In the additional comments section, thirty-five trainees had individual comments, nine of which were complimentary; others gave feedback regarding suggested change in delivery but fifteen of those responding to the questionnaire were vociferously negative about the course. The majority of these comments were about the compulsory nature of the course, the consequences of missing a session in the context of the attendance requirement of the 2008 Act, the payment of fees under the Education Regulations applicable to trainees who need to repeat sessions and, in some cases, questioning the relevance of having to take such a course. These negative respondents represented approximately 0.4% of the class and approximately one-sixth of those who chose to complete the end of course questionnaire.

Qualitative data from the Focus Groups

In response to a question in the course entry questionnaires requesting volunteers from whom the author could select focus groups for research for this paper, 38% had volunteered. However, at the end of the LPI course, just thirteen trainees were available to meet the author. They included one

native Irish speaker and one foreign national, and they varied in terms of standard from those who claimed to be average, standard and poor. Trainee focus at this time was on the end of course exams in core subject areas which understandably militated against availability for this focus group.

The author indicated that she would be available in the language lab. where she had set up an unobtrusive video camera called a Flip-video which has the facility of being downloaded via a USB. Trainees were engaged in conversation as they arrived to discuss their experience of the course. Sometimes it was a lone student; sometimes two or three would arrive together and the conversation would begin with whoever was there. There was an effort to stimulate this conversation by focusing on : trainees' reactions in advance of the course; responses to its compulsory nature; their views on the teaching online with normal teaching methods; the bilingual website; whether they considered the scenarios as emulating real life; their use of the online resources and how they assisted their learning; whether they liked the mix of one language tutor and one lawyer tutor in each discussion group; whether they would prefer the old Irish exam or the LPI; and how they would react if a client wished to consult with them in Irish. An individual conversation would take approximately fifteen minutes. If they wished to converse for longer, that was also permitted. These comments will not be analysed, but their contents stand testament to the broad expanse of participant views expressed during the course.

The types of feedback varied when trainees were asked if they were anxious when they learned that the course was a blended learning one:

"No, I wasn't anxious because I wanted to learn more Irish so I thought it would be a good opportunity to do so." Another: "Oh yeah!" Another: "No"; Another: "No"; Another: "Yes"; Another: "Not at all, not at all. I was absolutely looking forward to it, I think it's great and any attempts that are made to improve the language and the use of it is great"; Another: "No, not particularly, it was quite well explained to us in the beginning so we knew we'd get help if we were stuck"; Another: "Not before I came in and knew I had to do an Irish course".

Reactions to the compulsory nature of the course elicited the following comments:

- a. *"In the great scheme of things in the Law Society, most things are compulsory. I think, well, I did it because it was compulsory. I know it's statutory but I think it's kind of ludicrous".*
- b. *" Well ...the one reservation I had about was 'Oh my God'! – we only have eight weeks to do the course and now they're bringing in this Irish syllabus, you know what I mean?"*
- c. *"I just didn't feel, from just dealing in criminal law if we had just learned some Romanian or Polish; it probably would have been better. In fairness, because I find that we are constantly getting translators for Romanians or Polish or whatever"*
- d. *"That kind of scared me a bit; I think it scared everyone a little bit, that it was compulsory. Because, whatever age we are now, most of us are over 27 or 28, and I think we probably should have had the freedom to opt in or to opt out. I probably would have still opting in and I think other people would have too probably. Having it compulsory just meant that people didn't take any time to enjoy or get into it as much because it was like a chore more than an extra course".*

- e. *"It was grand, I suppose. It was better than doing an exam and there's wasn't that many hours really. So, it was grand."*
- f. *"It was fine but I didn't know it was compulsory for the first lecture."*
- g. *"To be honest, at the onset I thought it was pretty good."*
- h. *"No, in a way it was a relief because it was grand because there was no exam. I actually prefer this"[Foreign National Student].*
- i. *"I think, like a lot of my classmates, it felt like we were back in school and we were being forced to be doing it and no one liked it but you had to do it, and that was it, a matter of sitting through it."*
- j. *"No, it didn't frighten me because I knew I had the little bit extra [Irish]."*
- k. *"I think you're stuck in a difficult position; if you don't make in compulsory, no one will go. So, they won't find out one way or another. Even people who may have had an interest in it won't go, just because, you know, if it's an option between sitting out in the sun or going to Irish, what you going to do? Let's be honest about it!..So, the compulsory part of it was, sometimes you have to save people from themselves, and make them go to it you know. I had no real issue with that; I think it's the only way, the only practical way you can do it."*
- l. *"I suppose its kind of like the Irish in secondary school you went kind of resentful towards it, there's no reason to be just because its compulsory and you have to do it, you're slightly resentful."*

The reactions to the online aspect of the course: the blended learning, using the resources etc. was as follows:

- A. *"Well, I'm probably old school; I'd probably have preferred [lectures] to the online"*
- B. *"Yeah, I'm different, sorry! Yeah I think it was great and I think a lot of them should be like that. I'd prefer to sit at home and work at something at my own pace and to do it when it suited me rather than at any other time, rather than having to come in. I think we're old enough now where you should be able to take responsibility to do it yourself online rather, there was enough having to sign in and being at a lecture."*
- C. *"I'm not a computer person and I hate computers. Which is why I'm the very last person to do the...No, I prefer the normal teaching methods and I like the normal teaching methods. I loved the fact that you had the dialogue and you had to read it out in the class and then they wrote up the words that you didn't understand, and that sort of thing, I like to have it, if it's not I in my hand in black and white it doesn't exist, I'm not a computer person so I prefer the traditional method of teaching"*
- D. *"What I thought was great was the way we could access it from home because that's what I did a good bit as well, it was very easy."*
- E. *"Yeah, it was good yeah. The online was really good that you could listen to it. You know, when you're in a classroom and two people just start saying it in Irish you just get a bit distracted about what's going on and how they're saying it but when you're just sitting, listening to the Pod cast, it's easier. Go along yourself and start picking up the words."*

- F. *"I'd agree with [previous speaker]. I'd say it was handy listening to the Pod cast just to make sure you were on the right lines with words you might not have come across before. Yeah, it seemed to work out OK."*
- G. *"Yeah, I thought it was very good. Sometimes you might read something back to yourself, you wouldn't necessarily realise you've mispronounced something if you read it quickly you may not realise you've mispronounced something, you know yourself you've mispronounced it. So, when you hear it back over the Pod cast, the recorder Pod cast, you might identify areas where you realise, actually, I don't know how to say that, I didn't say it properly"*
- H. *"Yeah it's good. It allows you to do things in your own time...I think this is the better option."*
- I. *"Yeah well the online stuff you could do in your own time and that's better. The fact that it was compulsory attendance, the online definitely helped with that. If you had to come in to do that, that would mean 9 or 10 compulsory, where you'd have to show up you know, so the online defiantly helped with that anyway."*
- J. *"I thought it was quite good. I know that with the old type of exams, people had to do it, and I don't think there was much complaining as something that you had to do but I know people were complaining about going to the lectures and tutorials and all that but when I thought about it, it was a lot easier than maybe doing an old fashioned exam and the interaction and the, actually, how would you say it? Actually using it. Sitting up and speaking it, that interacting with someone else, it gave an extra dimension to it all I thought."*
- K. *"I thought the [discussion] classes were good, with the tutors, and I especially liked the fact that there were non-legal people brought in; it wasn't kind of done from a legal perspective, it was just about the actual language; which was much better. I found that reading through the scenarios... not a huge benefit to me. Because, you know, I'm just reading from a page, again, that just reverted to something like just tick the boxes to get it done. Whereas I didn't benefit from it at all because I had no better understanding of what I was doing from just reading it off a page. Whereas at least when you read it out in the classroom, with the teachers there; they can correct your pronunciation or tell you what words you weren't familiar with....Being able to access your thing whenever you want is always useful. That much was probably a no-brainer."*

Reactions to making connections between the PBL scenarios and real life situations were as follows:

- i. *"Yeah I suppose they were real to life. I suppose, in practice, you're not going to get too many human rights cases like the Jehovah Witness."*
- ii. *"They[clients] start out with one [issue] and it kind of leads into another [my will, my divorce, my house, my car accident]"*
- iii. *"Absolutely, yeah, there was; Natalie and her road traffic accident which is personal injuries, there was human rights with the Jehovah Witness and then there was the family law issue. Absolutely, yeah, yeah...And not only*

that, [the real world was integrating with what we were doing] it was broad enough that it would have improved your vocabulary and brought in loads of words. Whereas if you had just kept it to family law, personal injuries and, whatever, bad debt. Whereas bringing in the human rights aspect into it brought in new worlds and that was nice."

- iv. *"Yeah probably."*
- v. *"I can't remember them all now, but yeah, they would have been, yeah."*
- vi. *"Would you encounter someone who insisted on speaking Irish for a civil case like that necessarily?"*
- vii. *"I suppose it's more realistic to have a number of subjects with a client, even if they go in thinking they have only one thing in mind, other things will come up."*
- viii. *"Yeah they did come in with a few issues, that's what happens in reality, especially in a smaller firm."*
- ix. *"Yeah they were, I think so, yeah... it didn't get boring..."*
- x. *"Yeah there was, there was a link there, family and conveyancing went together. Yeah I thought that helped. I mean it cuts down as well, you wouldn't want a separate one for each, and you wouldn't have time I suppose.... I suppose civil and criminal go together, its just litigation really.... Yeah, yeah, all the scenarios were believable, that somebody could come in and this would have happened to them"*
- xi. *"If someone came in, my particular office is corporate based so we don't get walk in clients but I imagine it'd be something like that."*
- xii. *"The scenarios were real life but I think that that's not the way I'd have approached it because my level of Irish is so low. Maybe a beginner's Irish course would have been more beneficial"*

CONDITIONS FOR DOING THE SCHOLARSHIP OF TEACHING AND LEARNING

The completion by the author of the MSc IT in Education four years prior to this course ensured that the specific challenges and presented by the merge timetable allocation in a busy professional course was met by an ICT solution. The environment of the Law School was such that all LPI team members were focused on the same goal: the training of future solicitors. Fortuitously, two members of the team with IT expertise, one of whom could negotiate with the VLE service provider, were undertaking the same MSc programme and consequently were accustomed to the integration of theories of teaching and learning with ICT. The author, therefore, encountered a great willingness in convening a group of colleagues to collaborate in the design of the LPI course.

There was also institutional support from the Director of Education with regard to the possibilities presented by integration ICT and, in 2008, the then President of the Law Society was an Irish Language enthusiast. This resulted in the creation of a Language Lab despite deficits in physical resources caused by an enormous 'Celtic Tiger' increase of trainees on site with the consequent expenditure associated with the installation of necessary hardware and access to required software. The administration of Department of the Gaeltacht, Fiontar at DCU, The Dáil Translator's office and the National University of Ireland, Galway's Academy in Connemara all demonstrated a passion for their work with the Irish language which was infectious and served to motivate the author.

However, the impact of the workload associated with the private sector training of a record-breaking large number of trainee solicitors did militate against the regularity with which the author in Dublin could interact with the other seventeen researchers involved in the NAIRTL project *Making Connections: Strengthening and Documenting Intentional Teaching for Integrative Learning* and consequently impacted on the meeting of project milestones and necessitated a 'huge push' in early 2010 to deliver this paper in time for publication.

BENEFITS OF THE WORK

The wonderfully rewarding collegiate collaboration between the team members of the LPI creation team formed and enhanced relationships that have been since sustained. Those who joined the team developed new knowledge through that involvement. An enthusiastic and motivational energy abounded during the design planning meetings as the team engaged in "systematic reflection on and inquiry into the specific challenges and dilemmas that faculty face in the classroom" and engaged, thereby, with "the scholarship of teaching and learning" (Huber and Hutchings, 2004, p. 9). This team spirit meant that the its members supported each other as they assimilated each other's knowledge and constructed new knowledge which facilitated the delivery of the agreed course design. Everyone shared in a cultural Céilí celebration after the first successful course delivery!

The author rekindled the ICT knowledge that she had accumulated during previous study. She also resurrected a connection with the Irish language and its cultural identity. The Language Consultant used his psychology skills to communicate the message that was embraced by all trainees that one's culture and chosen language of communication is intrinsically linked with one's personal identity and must therefore be respected. This communication assisted in breaking down the barriers that were identified at course planning stage around some negative previous Irish language learning and the compulsory nature of the LPI course. The Language Consultant was new to using ICT to deliver the language and was astonished at how well the virtual environment accommodated its needs. In particular, when trainees podcast themselves in pairs role-playing the solicitor-client initial consultation, he and other faculty noticed that negativity and nervousness disappeared as they used this technology for the first time. They were paired with the person they happened to be sitting beside and encouraged to retain that 'partner' for future podcasts and optional Language Lab practice sessions. Again barriers had been broken and trainees were aware that they were involved in an intensive and rewarding learning experience. The IT manager reported great satisfaction with the willingness to embrace new technologies in course design and delivery and the collaboration that preceded it. She in particular became aware that having engaged in the initial training of faculty they quickly acquired the necessary skills and the course became self-sustaining. It was possible for her to 'showcase' this project to other colleagues who have since embraced similar technologies and incorporated new ones.

One team member benefited enormously as she successfully embraced the opportunity that she was offered by the Course Manager to use her experience as the subject matter of her MSc studies. She configured available technologies to create an on-line glossary and was able to build on the experience as one element of a career change into an IT management position (Egan, 2008).

Although not planned at designed as the project evolved towards its delivery, a decision was made to scaffold the mixed ability student groups by ensuring that all contact sessions were facilitated by one Irish language scholar and one lawyer with Irish language abilities. Thus

there was a further integration of skills which built of the multi-disciplinary nature of the course creation team. The lawyers have enjoyed the collaboration with fluent/native speakers; one of the native speakers had been tutor to the author in Connemara, and another, who had been in an Irish Language radio station, has since returned to college to develop her Irish language career.

The benefit to the trainees has been outlined above: they increased their language skills base, they easily integrated ICT into their learning and they made connections between the course content and the real world of practice of law. One outcome was the engagement of trainees in a Buddy System facilitated by the Course Manager, where fluent speakers 'mentored' those who had never studied the language previously, to ensure that they met necessary task outcomes. This collaboration resulted in the creation of a new community of learners and the building of relationships that have the potential to assist the foreign national trainees to integrate more easily into Irish society.

LESSONS LEARNED

There needs to be further collaboration with language experts to enhance certain aspects of the course. There needs to be more focus on the reading aspects of the course which would assist the use of legal terminology from a spoken perspective which is the main focus of the 2008 Act as it applied to all trainee solicitors.

More scaffolding is necessary for those trainees (mostly foreign national) who are new to the study of Irish so as to ensure their integration into the class. Discussions with language experts in this area have pointed the author in the direction of augmenting the glossary section of the website. Trainees who are fluent/above average need to be challenged more by the course as their feedback indicated that they needed to augment an already high standard of language skills.

The online Discussion Question of the course did not attract any trainee engagement and may not have a place on this elementary course for other than fluent trainees. Given the questionnaire feedback regarding written Irish, this is not surprising. Hung and Der-Thanq, (2001) refer to the fact that many virtual learning environments have chat rooms and discussion boards, but that students just do not engage with them on any level. The concern that trainees have regarding remote access is a concern for e-learning providers, which will be mitigated only when Broadband is rolled out nationally.

Research suggests that in an effort to gain student attention immediately, show the relevance of the materials, ensure students are confident with the material and have a sense of satisfaction and completion when the course is complete that the Attention, Relevance, Confidence and Satisfaction (ARCS) model, as defined by Keller (1999), should be considered as a basis for the design of every element of the course

More structure was needed around the focus group feedback which yielded rich data. However the author's desire to encourage free and open discussion resulted in the collation of some seventy-two pages of script from the filmed sessions, a very small portion of which could be inputted and interpreted in this paper. However, its value will have relevance in the ongoing development of the course and the Advanced LPI course that is due for delivery in summer 2010.

The administration of the delivery of this project in relation to attendance at lectures, workshop and discussion sessions and the monitoring and archiving of on-line tasks and podcasts is an enormous aspect of the project. A collaboration between the Course Manager, the Course Administrator and the

IT Manager and her colleague is planned in advance of the next LPI course in Autumn 2010 where IT solutions to reduce the course administration will be explored, agreed and implement towards the improvement of the delivery of LPI.

CONCLUSION

The answer to the question *'Has the scaffolding provided by a community of educators through ICT counteracted the barriers present due to its mandatory nature and previous negative Irish language learning experiences, resulted the fostering of intentional integrative teaching and learning?',* on the basis of the experiences reported above, has to be a resounding 'yes'!

ACKNOWLEDGMENTS

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APPENDICES

Illustration 1

LPI (LEGAL PRACTICE IRISH) COURSE DESIGN CREATION PROCESS

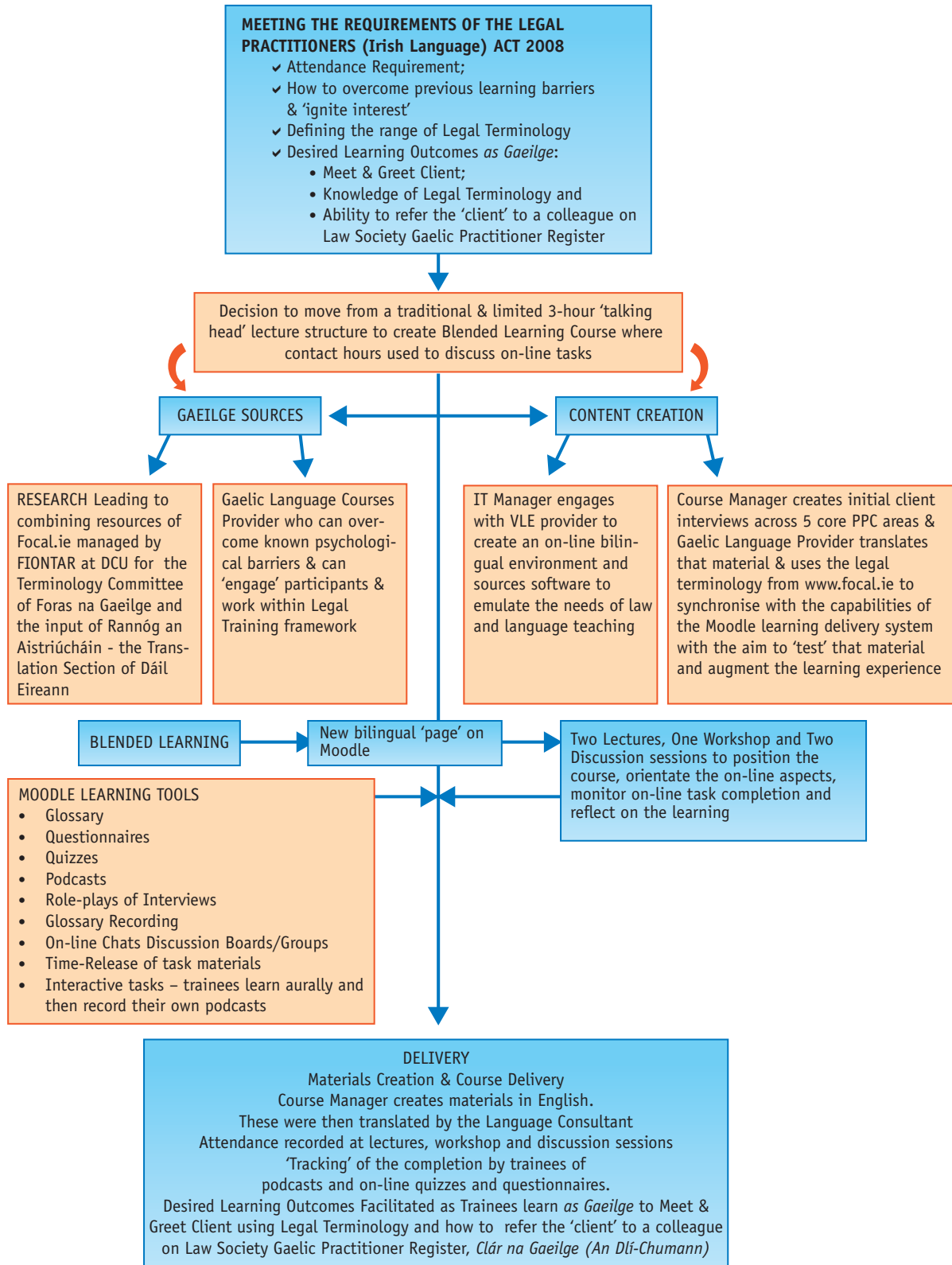
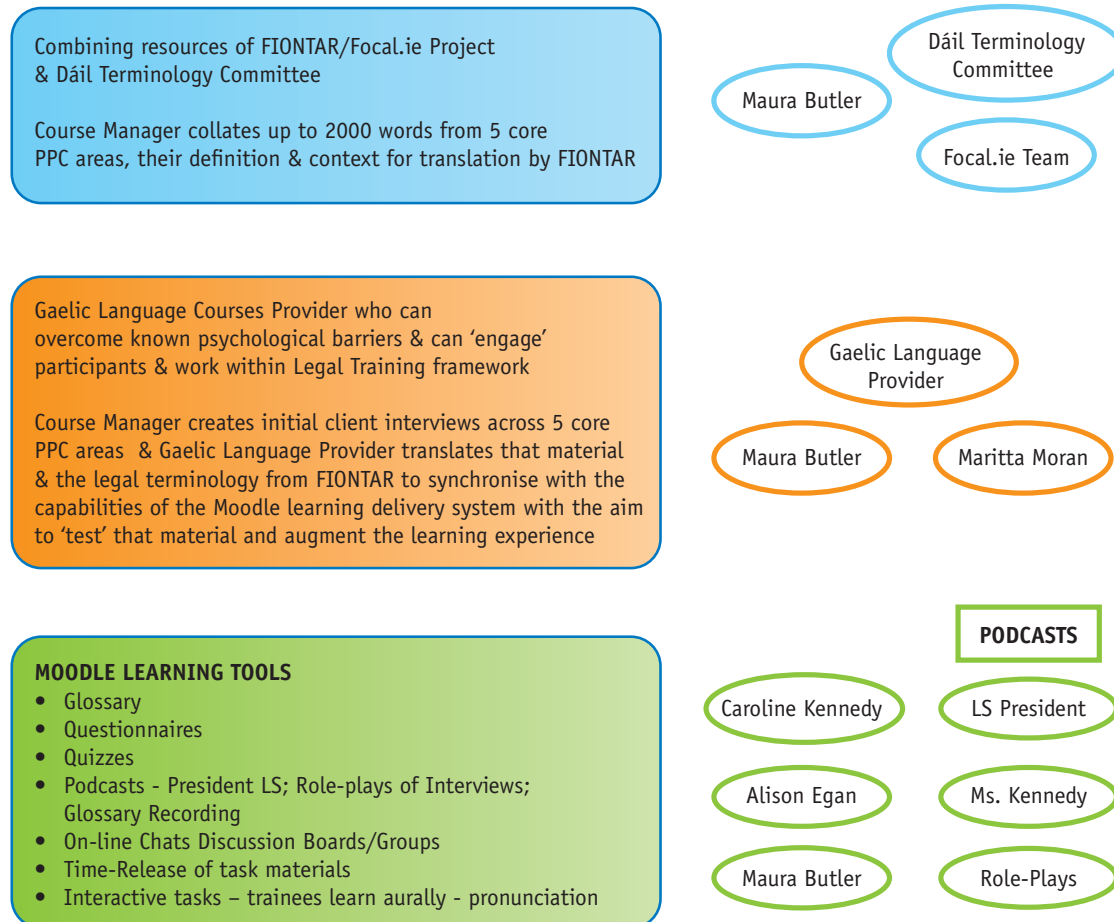


Illustration 2

LPI COURSE MATERIAL CREATION TEAMS



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Illustration 3
LPI LEGAL TERMINOLOGY LEARNING PROCESS

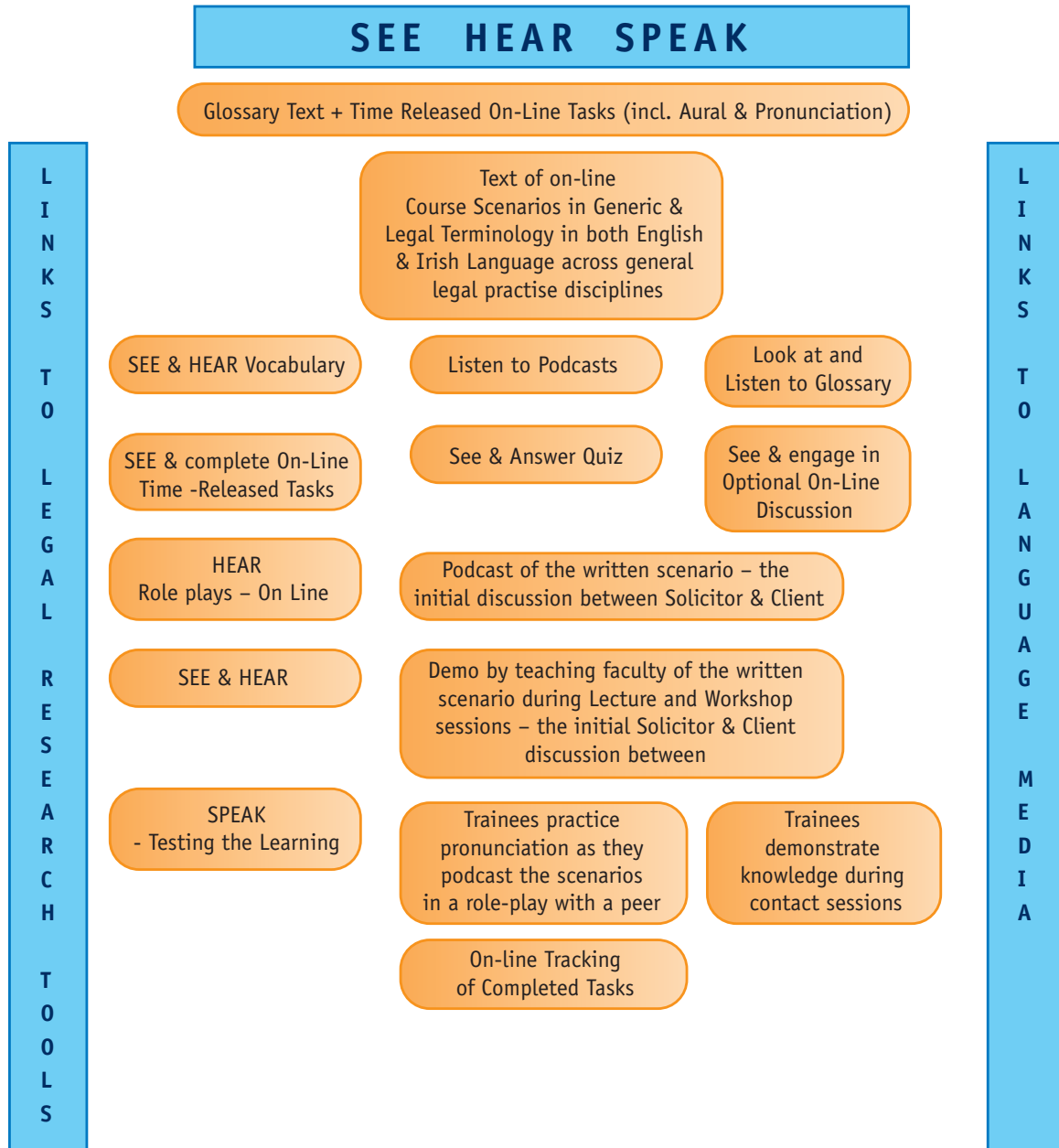
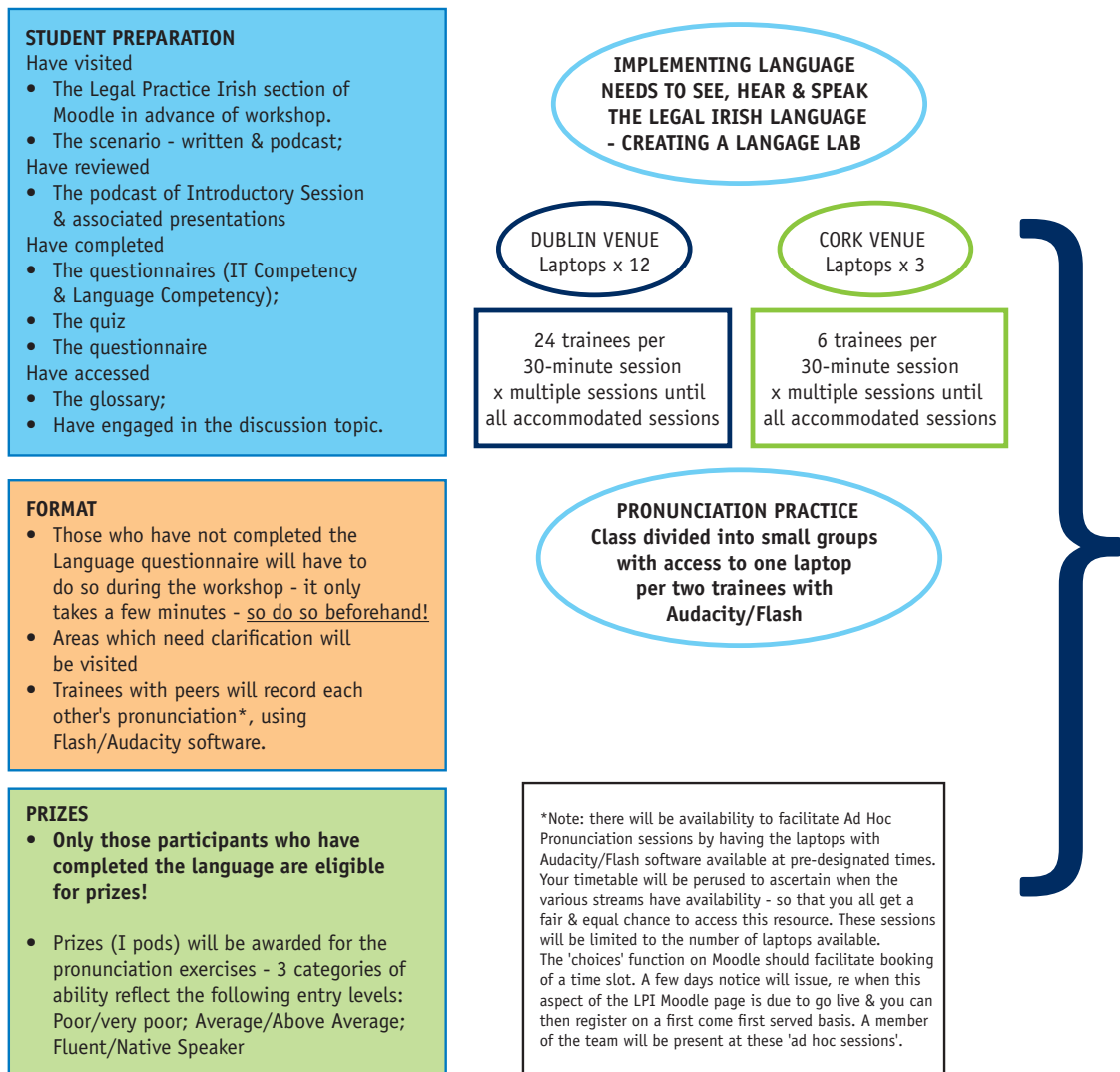


Illustration 4

WORKSHOP FORMAT

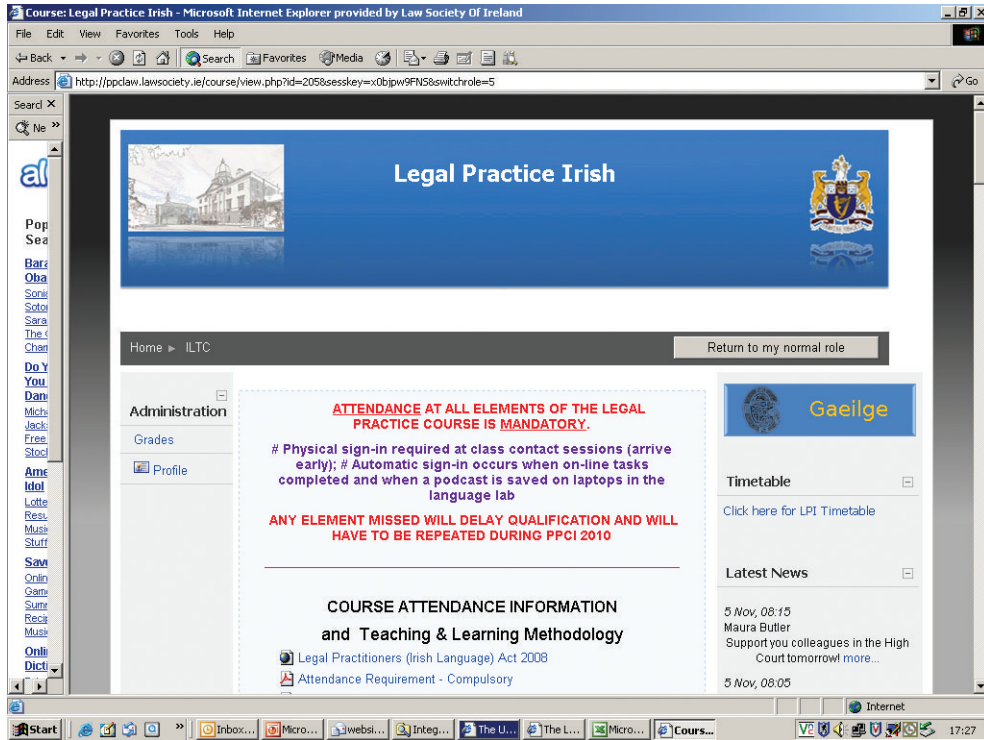


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Illustration 5

MOODLE SCREEN SHOTS

(i) English Version of the LPI web page ppclaw@propc.ie



Course: Legal Practice Irish - Microsoft Internet Explorer provided by Law Society Of Ireland

Address: <http://ppclaw.lawsociety.ie/course/view.php?id=205&sesskey=x0bjpw9FNS&switchrole=5>

Legal Practice Irish

Home ► ILTC Return to my normal role

Administration

Grades

Profile

ATTENDANCE AT ALL ELEMENTS OF THE LEGAL PRACTICE COURSE IS MANDATORY.

Physical sign-in required at class contact sessions (arrive early); # Automatic sign-in occurs when on-line tasks completed and when a podcast is saved on laptops in the language lab

ANY ELEMENT MISSED WILL DELAY QUALIFICATION AND WILL HAVE TO BE REPEATED DURING PPCI 2010

COURSE ATTENDANCE INFORMATION and Teaching & Learning Methodology

Legal Practitioners (Irish Language) Act 2008

Attendance Requirement - Compulsory

Gaeilge

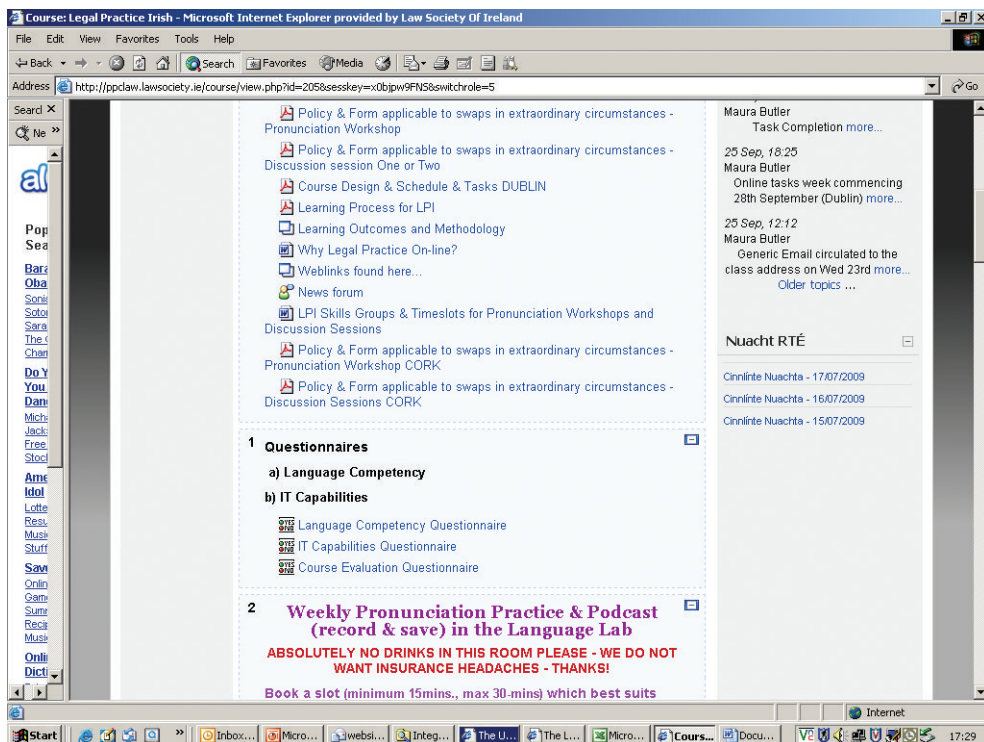
Timetable

[Click here for LPI Timetable](#)

Latest News

5 Nov, 08:15
Maura Butler
Support you colleagues in the High Court tomorrow! more...

5 Nov, 08:05



Course: Legal Practice Irish - Microsoft Internet Explorer provided by Law Society Of Ireland

Address: <http://ppclaw.lawsociety.ie/course/view.php?id=205&sesskey=x0bjpw9FNS&switchrole=5>

Policy & Form applicable to swaps in extraordinary circumstances - Pronunciation Workshop

Policy & Form applicable to swaps in extraordinary circumstances - Discussion session One or Two

Course Design & Schedule & Tasks DUBLIN

Learning Process for LPI

Learning Outcomes and Methodology

Why Legal Practice On-line?

Weblinks found here...

News forum

LPI Skills Groups & Timeslots for Pronunciation Workshops and Discussion Sessions

Policy & Form applicable to swaps in extraordinary circumstances - Pronunciation Workshop CORK

Policy & Form applicable to swaps in extraordinary circumstances - Discussion Sessions CORK

1 Questionnaires

a) Language Competency

b) IT Capabilities

Language Competency Questionnaire

IT Capabilities Questionnaire

Course Evaluation Questionnaire

2 Weekly Pronunciation Practice & Podcast (record & save) in the Language Lab

ABSOLUTELY NO DRINKS IN THIS ROOM PLEASE - WE DO NOT WANT INSURANCE HEADACHES - THANKS!

Book a slot (minimum 15mins., max 30-mins) which best suits

Maura Butler
Task Completion more...

25 Sep, 18:25
Maura Butler
Online tasks week commencing 28th September (Dublin) more...

25 Sep, 12:12
Maura Butler
Generic Email circulated to the class address on Wed 23rd more...
Older topics ...

Nuacht RTÉ

Cinnlnte Nuacht - 17/07/2009

Cinnlnte Nuacht - 16/07/2009

Cinnlnte Nuacht - 15/07/2009

Cúrsa: Cúrsa Cleachtadh Dlí as Gaeilge - Microsoft Internet Explorer provided by Law Society Of Ireland

File Edit View Favorites Tools Help

Address http://ppclaw.lawsociety.ie/course/view.php?id=2498&sesskey=x0bjpw9FNS&switchrole=5

Search X

Pop Sea

Bar: Oba

Son: Soto

Sara: The C

Chan

Do Y

You

Dan

Mich

Jack

Free

Stod

Am: Idol

Lotte

Res: Musi

Stuff

Save

Onlin

Game

Sum: Recs

Music

Onlin

Dict

7 **Seachtain 7: Cás Dlí Fostaíochta**

Creatlach Scéil Fostaíochta

Dlí Fostaíochta

Foclóirín Dlí Fostaíochta

Tráth na gCeist Dlí Fostaíochta

Dlí Fostaíochta - CEISTNEOIR

gCeist Díospóireacht

Eolas Chulrach Dlí Fostaíochta

8 **Seachtain 8: Seisiún Díospóireacht: Cás Gnó & AE, Cás Probháide & Cánach agus Cás Dlí Fostaíochta**

Obair Ullmhúcháin Ranganna Plé a Dó

9 **Tosaigh Seachtain 9 sa Léachtlan**

Am machnamh ar theanga agus daingniú an scoláireacht

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Tá tú logáite isteach mar: Maura Butler : Student (Return to my normal role)

INTEGRATIVE LEARNING WITH HIGH FIDELITY SIMULATION AND PROBLEM-BASED LEARNING: AN EVALUATIVE STUDY

Nuala Walshe, Sinéad O'Brien, Angela Flynn, Siobhán Murphy and Irene Hartigan

INTRODUCTION

Clinical simulation facilitates experiential learning in safe controlled environments and thus the development of clinical competencies (Alinier *et al*, 2006). The use of simulation in pre-registration nurse education has increased in recent years. Curriculum integration has been identified as an important facet of simulation programmes, yet the evidence suggests that this frequently does not occur.

The aim of this study is to evaluate the performance outcomes and student perspectives of a final year BSc Nursing elective module. The module was theoretically grounded in a constructivist paradigm and aligned to an integrative learning framework. Simulations aligned to problem based learning triggers were the principle teaching learning and assessment approaches.

What is Simulation?

Simulation is the *"artificial representation of a phenomenon or activity. Its purpose is to "replace or amplify real experiences with guided experiences often immersive in nature"* (Gaba, 2004, p. 1). Full scale simulation allows learners to practice and apply learned skills in realistic but safe environments and to observe the consequences of their actions or inaction (Beaubien and Baker, 2004). It also prepares learners for acute and infrequent clinical events. Fidelity is the degree to which the simulation and simulator reflect reality (Beaubien and Baker, 2004; Maran and Glavin, 2003). Engineering fidelity refers to the equipment and environment, while psychological fidelity refers to the fidelity of the learner's response. Psychological fidelity is achieved through the development of scenarios that reflect clinical reality allowing the learner to suspend disbelief, and behave as they would in practice (Beaubien and Baker, 2004; Gaba, 2004). Psychological fidelity is therefore not a function of the simulator, but can be enhanced by equipment and environmental fidelity (Beaubien and Baker, 2004). Task trainers, computer programmes, virtual reality, role-players and full body mannequins are all simulators with various degrees of fidelity (Jeffries, 2005).

Full body mannequins vary in fidelity and costs, with high fidelity versions beyond the budget of most nursing schools. However, the relative affordability of mid-fidelity mannequins has resulted in an exponential growth in this type of simulation in the last decade (Bradley, 2006). Physiological parameters are displayed on clinical monitors and are adjusted in response to students' actions, or pre-programmed to represent clinical events. These mannequins can breathe, talk, sweat, cry, bleed and urinate. They can be injected, intubated, sutured, resuscitated and defibrillated. They have palpable pulses, heart, lung and bowel sounds, all which can be altered to realistically reflect various clinical events.

DRIVERS FOR THE USE OF SIMULATION IN THE EDUCATION OF HEALTH PROFESSIONALS

While simulation is a relatively recent innovation in nurse education, other industries, most notably aviation, have embraced it for the purposes of training, testing and crew resource management (Bradley, 2006, Gaba, 2004). Aviation, much like healthcare, is associated with high risks which frequently preclude training and testing in the real environment (Bradley, 2006). However unlike health care it is considered highly reliable (Reason, 2005), while healthcare appears to lack the structures and systems to ensure basic safety (Kohn *et al*, 2000). This has led to an increased emphasis on patient safety (Mattie and Ben-Chitrit, 2007) with a corresponding increase in

simulation based programmes in the United States. Likewise in the United Kingdom reports such as the *Bristol Enquiry* have resulted in a reconsideration of the traditional apprenticeship type approach to medical training with a resultant increase in the adoption of simulation (Maran and Glavin, 2003).

Nurse education is similarly challenged as changes to the clinical learning environment have adversely affected students' learning opportunities, support structures and competence to practice (Murray *et al*, 2008; Nehring, 2008). Simulated activities can bridge some of these competency concerns but, crucially, they are viewed as an adjunct to and not a replacement for clinical placement learning (Nehring, 2008).

TEACHING AND LEARNING

Nurse registration bodies, both in the United States and the United Kingdom (Murray *et al*, 2008; Nehring, 2008), support and promote simulation. It is currently used for the development of competences such as clinical judgement, critical thinking, the application of knowledge to practice, communication and teamwork skills (Nehring and Lashley, 2009; Lasater, 2007). These competencies are frequently developed in the context of acute clinical events with advanced medical-surgical and patient assessment skills emphasised.

However teaching and learning theories underlying simulated activities are frequently not considered (Parker and Myrick, 2009). When they are, the underlying objective is often stated as a teaching rather than learning approach, with a behavioural rather than cognitive emphasis (Kaakinen and Arwood, 2009). Simulation exposure is frequently added on top of the normal curriculum (Alinier *et al*, 2006; Radhakrishnan *et al*, 2007) or introduced in place of it (Brown and Chronister, 2009). Exposure is often limited to one or two encounters (Feingold *et al*, 2004; Mole and McLafferty, 2004; Reilly and Spratt, 2007). As a result the effects of simulation on the performance outcomes of nursing students are difficult to estimate with only three studies located that specifically addressed this issue. These studies have varied results including improved performance in peri-operative patient care following two afternoons of simulation (Alinier *et al*, 2006) and in fundamental patient assessment skills (Radhakrishnan *et al*, 2007). Hicks (2009) found no significant differences in the overall outcomes of students exposed to simulation alone in comparison to two similar groups, who were exposed to either clinical practice alone or to a combination of clinical practice and simulation. Unfortunately the reliability and validity of instrumentation used in all three studies was either not reported (Alinier *et al*, 2006; Radhakrishnan *et al*, 2007) or not finalised (Hicks *et al*, 2009).

STUDENT PERSPECTIVES

Students value simulation as a learning experience (Feingold *et al*, 2004). They value the chance to practice without causing harm to patients (Horan, 2009) and appreciate the opportunity for feedback (Bruce *et al*, 2009, Childs and Sepples, 2006). Students appear to recognise the benefits of active learning and enjoy this approach to learning (Reilly and Spratt, 2007). It is identified as a means of connecting theory with practice (Horan, 2009; Radhakrishnan *et al*, 2007). On the other hand some students find simulations stressful (Childs and Sepples, 2006) while others report that it does not allow them to function as they would in practice (Mole and McLafferty, 2004).

The evidence suggests that students are enthused by simulated practice; however, pedagogical approaches that harness this enthusiasm and facilitate measurable performance outcomes are required. A sound grasp of educational philosophy and its influence on simulation is

needed in addition to research regarding the relative benefits of various teaching learning and assessment approaches (Hyland and Hawkins, 2009; Parker and Myrick, 2009). Curriculum integration is emphasised in the literature (Starkweather and Kardong-Edgren, 2008), yet the evidence suggests integration is frequently not considered. Pedagogy not technology should guide programmes (Parker and Myrick, 2009). If simulation technology is to deliver on its promise and take a meaningful place in pre-registration nurse education then an integrative teaching, learning and assessment approach is required.

INTEGRATIVE LEARNING

Integrative learning is concerned with making connections between courses over time and between campus and community life, thus avoiding disciplinary and curricular isolation (Huber *et al*, 2004). The capacity to integrate requires crucial competencies such as critical thinking, problem solving, adaption to change and the capacity for lifelong learning (Birenbaum *et al*, 2006). Emotion, intentionality, active involvement, self-assessment, and self awareness are identified as key to fostering integrative learning (Huber *et al*, 2004). Real world integration, disciplinary relevant meaningful contexts and a sense of ownership are recurrent themes in the literature (Fink, 2003; Shulman, 2004). Pedagogies such as Problem Based Learning (PBL), collaborative learning and experiential learning are thought to promote an integrative approach (Gale, 2006).

PBL enables students to explore real life situations with an emphasis on problem solving and teamwork (Boud and Feletti, 2003). It has been adopted in many healthcare courses particularly in medicine, where it has its origins. Attributes of successful simulation are consistent with Knowles' theory of adult learning and experiential learning as described by Kolbs (Maran and Glavin, 2003). These features assist learners in constructing their understanding through their interactions with a broad range of situations (Bradley and Postlethwaite, 2003) and are consistent with a constructivist teaching and learning approach.

Nurse educators have developed frameworks for simulation practices guided by pedagogical principles, such as active learning, feedback, collaborative learning and recognition of diverse learning styles (Jeffries, 2005). Following an extensive literature review, Issenberg *et al* (2005) identify ten features of simulation that lead to the most effective learning. These include: focussed constructive feedback; repetitive practice; curriculum integration; multiple learning strategies; clinical variation; controlled environment; clearly defined and measurable learning outcomes; and appropriate simulator fidelity.

Clearly many of the attributes of successful simulation resonate with an integrative approach. However, an integrative pedagogy also considers the assessment approach, which is viewed as an integral component. Constructive alignment, that is alignment of the course objectives, teaching and learning approaches and assessment strategies, is recommended (Biggs, 2003). Formative assessment with structured feedback is as relevant as summative assessment (Birenbaum *et al*, 2006). This approach is grounded in the potential reality of future work, with opportunities for reflection and self assessment thus promoting active student participation (Boud, 2000; Fink, 2003). The significance of self-assessment with respect to fostering reflection, self-awareness and developing lifelong learning skills has been discussed at length (Fink, 2003; Fitzpatrick, 2006) It requires development in an intentional and meaningful manner (Fink, 2003). Self-assessment has long been associated with the professions, in particular those that are self-regulating, and is now frequently incorporated in professional courses (Fitzpatrick, 2006).

CONCLUSIONS

The literature reviewed suggests increasing interest in the use of simulation in pre-registration nurse education. This appears to be linked to concerns regarding the competency of the graduating nurse and an increased focus on patient safety. However, this has resulted in the adoption of this technology in a haphazard, non-integrated manner. Integrative learning seeks to develop higher order competencies in a disciplinary relevant context. Simulation as an experiential pedagogical approach is well placed to provide an integrative experience; however attention to course design, fidelity, integration and appropriate formative, summative and self assessment is required. The comprehensive evaluation of such programmes is also required in order to measure the relative benefits of this teaching and learning approach. This prompted the evaluation of an elective fourth year BSc nursing module theoretically grounded in a constructivist paradigm and incorporating key elements of an integrative pedagogy. The module focuses on the nursing management of acute events and uses problem based learning and simulation as the principle teaching and learning approaches.

AIM

This study aims to comprehensively evaluate a Problem-Based Learning and simulation based module taken by final year BSc in Nursing students

SPECIFIC OBJECTIVES

- To retrospectively evaluate and score the technical, clinical decision making, communication, and patient assessment competencies of fourth year nursing students for each simulation they participated in throughout the course of the module.
- To evaluate students self-assessed performance scores.
- To evaluate students perspectives of the module.

ETHICAL APPROVAL

Ethical approval was obtained from the university research ethics board. Written information was provided to all potential participants outlining the study protocol. Recorded simulations were accessible on a password protected server to research team members only. Participation in the study did not impact on participants' course outcomes and they were free to withdraw without prejudice at any stage.

SAMPLE

Thirty-four final year pre-registration nursing students enrolled in the module in September 2008. All students consented to participate in the study by signing consent forms.

MODULE CONTENT

This module is theoretically grounded in a constructivist paradigm with specific emphasis on an integrative approach. It focuses on the management of acute nursing events encountered by final year nursing students in acute medical/surgical wards. These events were identified through focus group interviews in associated teaching hospitals (Hartigan *et al*, 2010). Problem based learning (PBL) and simulations were combined as the principal teaching learning and assessment approaches. The module was specifically developed to incorporate both the features of an integrative pedagogy and of successful simulation practices that were identified in the literature (Table 1).

Features of an Integrative Approach	Related Best Practice for Successful Simulation	How an integrative approach and best practice in simulation are incorporated into the Module
Curricular and disciplinary integration Real world application	Clinical variation Curriculum integration	<i>Problems and simulations derived from practice through focus groups with novice and experienced clinicians. Simulations integrated into curriculum and directly associated with PBL triggers</i>
Making Connections Complex Competencies Higher Order Processes		<i>Learning outcomes, problem triggers and simulations were aimed at developing patient assessment, clinical decision making, communication and the technical skills.</i>
Experiential Learning Problem Based Learning promotes an integrative experience.	Multiple learning strategies Active students Range of difficulty	<i>PBL and simulation are experiential approaches with active and self directed student involvement required. Problems and simulations become more complex as module progresses.</i>
Emotion and engagement	Simulator fidelity Environmental fidelity Authenticity of scenarios	<i>Fidelity is planned and depends on the context of the simulation. Mid-fidelity mannequins and actors in combination with the excellent environmental fidelity of the simulation centre, scenarios drawn from practice and experienced facilitators result in a high fidelity authentic and engaged experience.</i>

Features of an Integrative Approach	Related Best Practice for Successful Simulation	How an integrative approach and best practice in simulation are incorporated into the Module
Constructive Alignment Performance based assessment for complex competencies	Defined measurable outcomes	<i>Formative assessment follows each simulation.. Self-assessment follows each simulation Module Summative Assessment is a simulation assessment (70%) and reports from PBL sessions (30%) All content directly relates to defined outcomes</i>
Analytical Rubrics for performance based assessments	Defined measurable outcomes	<i>Analytical rubric specifically developed and tested for inter-rater reliability is used by the students and facilitators throughout the module</i>
Student orientated not teacher focussed	Lecturer as facilitator	<i>PBL sessions are student led with learning issues identified and researched by students. Simulation sessions are facilitated by experienced facilitators who are trained to support feedback and encourage reflection and self assessment.</i>

Table 1: Features of an Integrative Pedagogy and Best Practice in Simulation Adopted
PROBLEM BASED LEARNING (PBL)

Three problem triggers are presented and relate to acute events that students are likely to encounter in the clinical environment (Hartigan *et al*, 2010). A cycle of PBL work and related simulations is repeated on three occasions over the course of the ten week term. The following process is repeated for each problem:

- *Week One - Students are presented with the problem in their PBL groups, they discuss the problem, identify learning issues and take responsibility for particular issues to research.*
- *Week Two - Students return to a reporting tutorial having completed their independent study.*
- *Week Two - Students attend a 3-hour clinical skills session relating to topics that they themselves request as a result of the PBL process.*

- *Week Three - Students manage 2 x one hour simulated acute events that are directly related to the trigger used in the PBL sessions and as such aim to promote the integration of theory and practice. Feedback follows each simulation. Students can also review recordings independently and use the assessment rubric to aid reflection and self-assessment.*

SIMULATION SESSIONS

Simulations are directly related to the PBL triggers, use the same case histories and initial assessment data, and are derived from practice. They are planned by an experienced facilitator who has clinical expertise in the subject area. Simulations portray various acute clinical events and gradually increase in difficulty as the module progresses. A number of opportunities are programmed to give each student several opportunities to engage in patient assessment, clinical decisions making, technical and communication skills. Students are asked to think 'out-loud' to promote and assess clinical decision making. All scenarios require students to seek help in order to promote communication competency. This is achieved via an intercom system which has the advantage of allowing the recording of both sides of the conversation, for use in debriefing.

FIDELITY

Mid-fidelity mannequins or role-players or a combination of both are used depending on the simulation. The fidelity of the simulation experiences is further enhanced by the state of the art resources available in the simulation resource centre. All the essential aspects of a clinical environment are replicated in addition to a range and variety of mannequins. Fidelity is also increased by using cases derived from practice. The simulation is programmed into mannequins and a script developed when required for actors.

STRUCTURE OF SIMULATION

One hour is allocated to each simulation, five minutes for student orientation and review of learning outcomes, thirty-six minutes simulation and the remaining time for debriefing and feedback. Students manage the simulated events in pairs which are assigned at the beginning of the module, with the leadership role assigned to individual students on alternate weeks. All simulations are recorded using an integrated digital recording system which greatly assists self, peer, and facilitator review. Students also have access to a playback facility which they can access in privacy at any time in the schools information technology laboratory. Each student participated in six recorded simulations.

DATA COLLECTION INSTRUMENT

An analytical assessment rubric was developed and tested by the research team and inter-rater reliability established ($ICC=.75$ and Cronbachs $\alpha=.82$) (Walshe *et al*, forthcoming). The rubric describes four domains of competency (patient assessment, clinical decision making, technical skills and communication) with five associated indicators described across five performance levels.

DATA COLLECTION

1. In August 2009, the recorded simulations (six simulations, totalling 120 minutes of recordings per student) were retrospectively reviewed by two of the researchers with established inter-rater reliability. Simulation one, three and five were scored by one assessor and two, four, and six by the other with assessors blind to each others scores. Assessors identified the descriptor that most closely described the performance observed for each of the twenty indicators. These were then summed to award a score out of twenty five for each domain of competency and out of one hundred for the overall score.
2. Following each simulation (with the exception of the final simulation) students completed a self-assessment using the analytical rubric.

3. On completion of the module students completed a module evaluation using Mark Class.

DATA ANALYSIS

Data analysis was performed using SPSS version 17.0 for Mac. Descriptive statistics were calculated for the competency scores (0-25) and overall scores (0-100) awarded to the thirty four students and to the self assessed scores.

RESULTS

There was considerable variation in over all scores among students with a low of forty-three and a high of fifty-nine (simulation one) and a low of fifty-three to a high of seventy-eight (Simulation six). Score increase varied considerably between students with 37.5% increasing scores by less than 10%, a further 37.5% between 10-15% while 31% increased scores by more than 15%. Descriptive statistics revealed an increase in mean score from simulation one ($M=51.48$, $SD=3.90$) to simulation six ($M=62.59$, $SD=6.59$).

Simulation	Mean of 34 Scores	Median	Standard Deviation
1	51.48	51.75	3.90
2	53.76	53.00	6.05
3	58.61	58.00	5.93
4	54.19	53.25	6.88
5	60.40	60.00	6.77
6	62.59	62.50	6.59

Table 2: Mean Assessor Score per Simulation

With the exception of scores awarded for simulation 4, scores progressed in a positive direction (Table 2). An examination of scores awarded for the individual domains of competency (Table 3) reveals an increase in scores for all four domains with the largest mean increase in the domain of patient assessment $M=12.91$, $SD 1.41$ (Simulation 1) and $M=16.09$, $SD 2.26$ (Simulation 6).

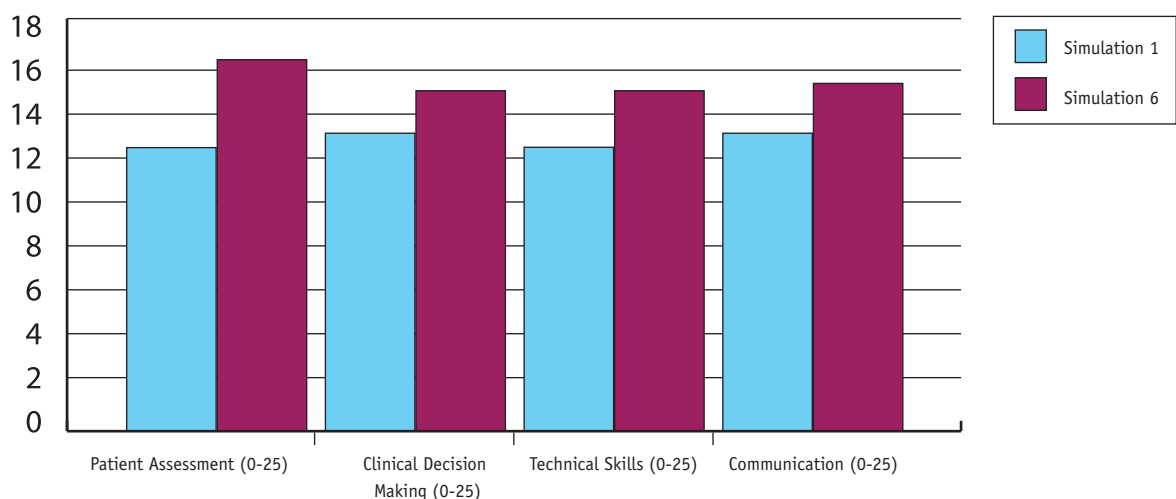


Table 3: Mean Score awarded for Domains of Competency

A statistically significant deviation from the overall mean was found for all domains and total score.

Test	ANOVA F	Contrast F	Curve
Patient Assessment	25.68 **	55.11**	Linear
Clinical Decision Making	23.49**	54.24**	Linear
Technical skills	12.54**	50.54**	Linear
Communications	18.57**	49.15**	Linear
Total Scores	30.29**	74.28**	Linear
Note: * = p<.05, ** = p<.001			

Table 4: Analysis of Variance Domains of Competency and Total Score

According to the planned contrasts and inspection of the means, overall there was a clear positive linear association, i.e. students marks increased over time (Table, 4).

SELF ASSESSMENT

Descriptive statistics for students' self assessed scores reveals a relatively static pattern with a mean score for simulation two (M 59.47 SD 4.89) as compared to simulation five (M 61.26 SD 6) (Table 5).

Simulation	Mean	Median	Standard Deviation	Missing Data
1	60.15	61.00	5.37	15
2	59.47	60.50	4.89	3
3	59.98	62.15	7.04	6
4	58.95	59.80	5.41	3
5	61.26	62.00	6.67	3

Table 5: Mean Self Assessed Total Scores

Descriptive statistics for means across the four domains of competency reveal a similar pattern (Table, 6). The greatest increase in mean self assessed score was in Clinical Decision Making where M=14.48, SD 1.29 (Simulation 2) and M=15.20, SD 1.97 (Simulation 5).

(Note: Simulation one not referred to due to missing data. Students did not complete a self assessment for simulation 6 due to examination conditions)

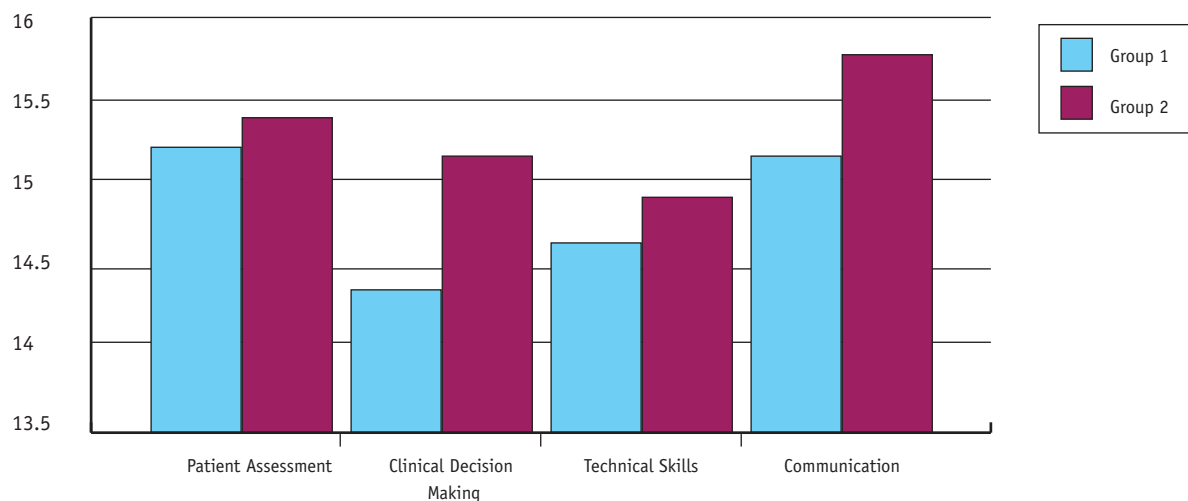


Table 6: Student Self-Assessment Mean Domain of Competency Score

A statistically significant deviation from the grand mean was found for Clinical Decision Making as $F(5)=3.11$, $p<.05$ and Communication $F(5)=3.12$, $p<.001$. No statistical differences were found on the grand mean for Patient Assessment, Technical Skills or the Overall score. According to the planned contrasts and inspection of the means, overall there was not a positive association, i.e. students did not grade themselves higher as the module progressed (Table 7).

Test	ANOVA	Contrast F	Curve
Patient Assessment	1.41	-	-
Clinical Decision Making	3.11*	5.30*	Cubic
Technical Skills	1.59	-	-
Communications	3.12*	5.30*	Cubic
Total Scores	1.84	-	-
Note: * = $p<.05$, ** = $p<.001$			

Table 7: Analysis of Variance - Self Assessed Scores

Reliability estimates were subsequently applied to test if the pattern of self assessed scores was indicative of improved correlations between rater's scores and self assessed scores.

Simulation	ICC r	Excluded n
1	.05	15
2	.57	3
3	.44	6
4	-.15	3
5	.59	3

Table 8: Consensus Estimates between Self Assessed Scores and Facilitator Scores

These results are inconclusive although correlations improved overall from ICCr=.05 Simulation one to ICCr=.59 Simulation 5. (Table 8, Figure 1)

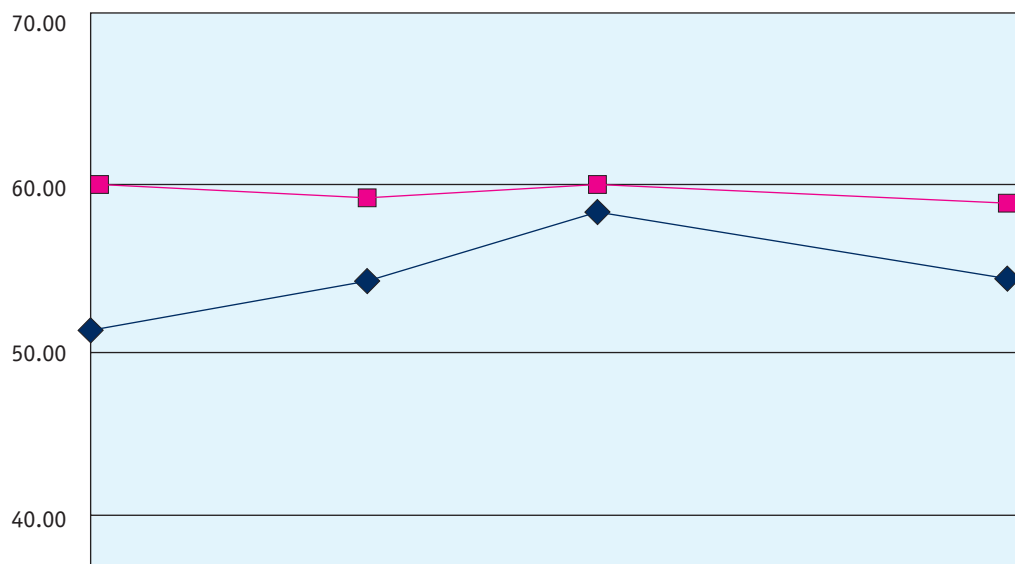


Figure 1: Self Assessed and Assessor Scores

MODULE EVALUATION BY STUDENTS

The evaluation consisted of a combination of quantitative and qualitative questions and was completed by thirty one students online at then end of the course.

QUANTITATIVE RESULTS

80% of students agreed that three cycles of PBL and simulation was sufficient while 16.1% requested more and 3.2% less cycles. 100% agreed they would recommend this module as an elective to next year's cohort. Students' level of comfort with the recording and review of simulations was mixed with 12.9% extremely comfortable, 9.7% very comfortable, 63% comfortable and 16% uncomfortable.

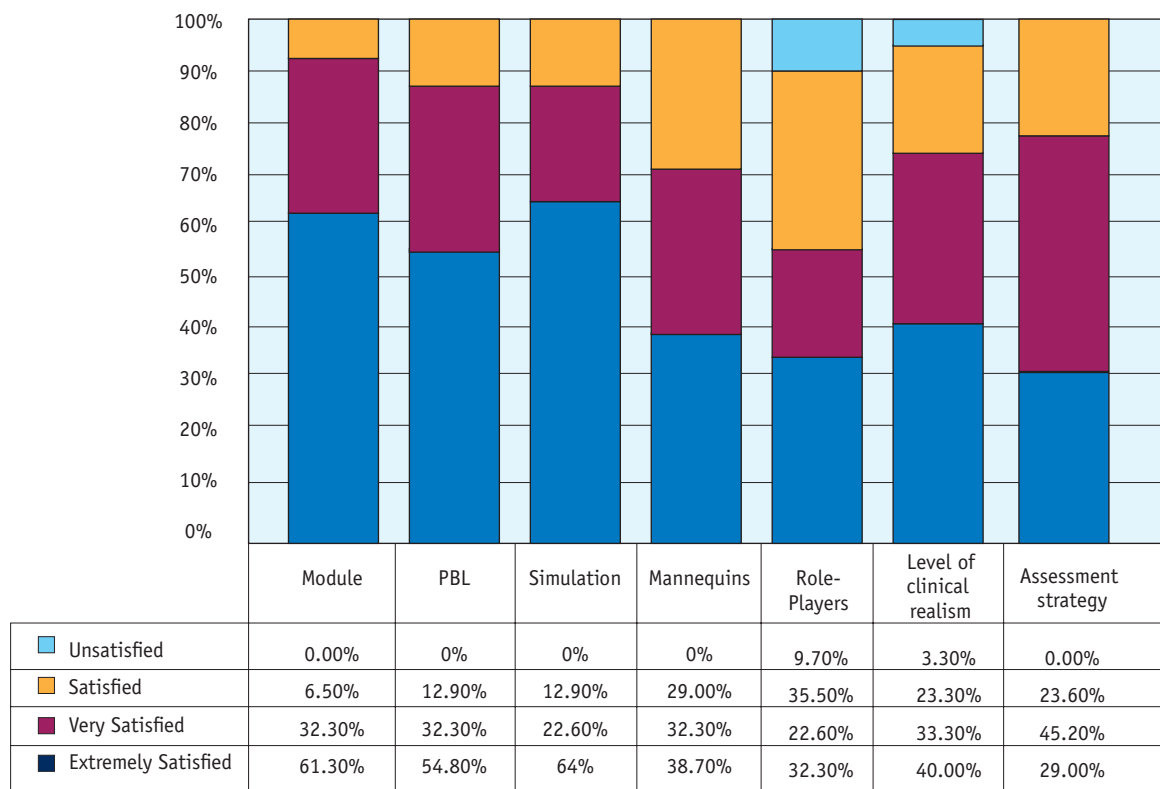


Table 9: Summary of Quantitative Responses

The majority of students were either satisfied or very satisfied with various elements of the module, responses are summarised above (Table 9).

QUALITATIVE RESPONSES

The major themes emerging from the qualitative responses are briefly presented below

Q. 1: What is the most challenging aspect of Problem Based Learning?

The student led nature of the module was new to most students and identified by seven as very challenging. Presenting back independent learning to the PBL group was a source of concern for five students with confidence in relation to the relevance, appropriateness and accuracy of researched material highlighted. Two students found the initial exploration of the PBL triggers challenging while concerns relating to the fair division of learning issues among students was also noted.

Q. 2: What is the most challenging aspect of Simulation?

Five students identified difficulties integrating theory reviewed during PBL sessions to the linked simulation, while three others noted difficulty preparing for simulations as the nursing interventions were dependant on the evolving scenario. Assuming a leadership role (two students) and multidisciplinary communication (two students) were also identified. Others (three students) found prioritisation of nursing care challenging.

Q. 3: What are the rewarding aspects of Problem Based Learning?

Students were surprised at their level of knowledge. They valued having control of their own learning (three students), identifying their own learning issues (six students), the student led nature of the approach (two students) working as part of a group and learning from each other (six students).

Q.4: What are the positive aspects of Simulation?

Students commented on the value of the module to their future practice (six students). A large number commented on the value of team work and the development of communication skills both in the PBL process and in simulations (eight students). Others appreciated the opportunity to make, recognise and rectify mistakes (five students); a number commented that the ABCDE patient assessment approach re-enforced in each simulation would benefit them in any clinical environment (six students). The majority agreed that the combination of PBL and simulation helped them integrate theory to practice, this was further enhanced by the use of realistic scenarios; "In the cardiac problem I was able to use the knowledge I had learned about identifying irregular cardiac rhythms in simulation and was able to recognise a life threatening arrhythmia, perform the ABCDE assessment and commence resuscitation" (student fifteen). While many students appreciated the value of feed-back post simulation a number (seven) recommended more time for this.

Q.5: Please comment on the usefulness of self-assessment

Twenty eight students responded that they found the self assessment with the rubric useful, very useful or excellent: *"Yes they were really helpful in drawing attention to the simulation and reflecting on what you had just practiced, any mistakes or achievements were noted which is good!"* (student twenty-five). One student disliked this exercise but agreed it was useful, one did not feel it was beneficial, and one while useful found that she was more deflated afterwards. The majority agreed that although watching their videos was at times embarrassing and sometimes disturbing, it was a good way of reviewing performance in private with their simulation partner: *"I found them very good it made you look at how you actually present to a patient and how you coped with the scenario presented"* (student sixteen). Three choose not to watch their own recordings reporting that feedback after the session was sufficient; *"I did not review the videos, I was not comfortable reviewing myself particularly if I did poorly in the simulation ... it would have reduced my confidence"* (student twenty).

Q.6: Suggestions to improve module

Thirteen students strongly recommended that it become a compulsory rather than an elective module. Workload was a difficulty for a number particularly when compared to other electives. Other suggestions included more time for feedback (seven students) more specific formative assessment with marks allocated on rubric (two students), more use of role-players and mannequins in combination (two students). Six students commented that a problem based learning and simulation approach should be part of every year. Four commented that it was the most relevant worthwhile and enjoyable module they had taken in the four year course.

DISCUSSION

The results suggest that the integrative pedagogy was successful at a number of levels. The results indicate an improvement in mean overall score, which although relatively limited (11.5%), must be interpreted in the context of an evaluative study, where simulations progressed in difficulty and content as the module progressed. While a more significant increase in scores was therefore not anticipated, the variation in individual performances is noteworthy. Performance improvement varied considerable, with 37.5% of students increasing scores by less than 10% the same number by 10-15%, while 31% had an increase of greater than 15%. The alignment of performance based assessment

strategies including formative assessment is an integral component of an integrative pedagogy (Birenbaum *et al*, 2006). Although the significant majority of students in this study appeared to benefit from the pedagogical approach others did not. A formative assessment strategy facilitates the identification of such performance variations and thus the instigation of appropriate interventions. As with Mole and McLafferty (2004) students' themselves perceived a requirement for more feedback and more specifically would have appreciated a formative grade rather than general feedback.

Evaluative studies of this nature are also a valuable means of determining the relative difficulty of various aspects of a module. While there was a linear progression of scores throughout the module a distinct drop in performance was evident for simulation four. This simulation involved a cardiac arrest and was noted by facilitators as particularly challenging to students. The literature highlights the ineffectiveness of traditional approaches in the development of basic life support skills (Hamilton, 2005) and the value of simulation in the attainment of them. This module however, centres on the management of acute events generally and not exclusively on cardiac arrests situations. It indicates that this particular scenario may need more preparation, practice and repetition.

Analysis of mean scores for the four domains of competency reveals a statistically significant improvement in all domains. This reached greatest significance in the clinical decision making and patient assessment competencies concurring with Radharkrishnan (2007) and reflective of the strong relationship between these two competencies (Del Bueno, 2005). Significantly, technical skills recorded the lowest significant increase, possibly related to the constructivist approach which aimed to promote the development and application of previously learned skills and not the development of new skills *per se*.

A similar analysis of students' self-assessed scores was essentially inconclusive. Descriptive statistics reveals a relatively static pattern. However the results suggest that students graded themselves higher than assessors as the start of the module ($M=60.15$ v 51.48) and whereas assessors scores increased, self assessed scores remained relatively static. The correlation between the two sets of scores for simulation five, ($ICCr=.59$) in addition to similar mean score (60.4 v 61.26), are indicative of an overall increase in the accuracy of self assessment. Despite a number of reservations twenty-eight of the thirty-four students found the self assessment exercise to be worthwhile. Similarly while the viewing of recorded simulations was at times embarrassing it was recognised by the majority of respondents as an effective means of encouraging reflection and identifying mistakes and achievements.

The overall evaluation for this module was overwhelmingly positive. Students identified many positive aspects similar to those previously reported, including the opportunity to make mistakes and correct them (Horan, 2009; Reilly and Spratt, 2007) the value of feedback (Bruce *et al*, 2009) and the benefits of an active learning paradigm (Reilly and Spratt, 2007). However, while other studies evaluate student perspectives of simulation, this study is also concerned with evaluation of the integrative pedagogy. Although students encountered many challenges, these were out weighed by the perceived benefits. They valued problem based learning, the associated simulation and the use of video and self assessment strategies. They identified the benefits of exploring problems in PBL tutorials and applying this knowledge to related simulations and the difficulties they encountered when attempting to make these connections. Students identified the leadership role and multidisciplinary communication as particularly challenging, but did not report engaging with mannequins as problematic as others have (Lasater, 2007, Mole and McLafferty, 2004). This suggests that an integrative

pedagogy which includes repeated simulation exposures, scenarios derived from practice, highly realistic environments, mid-fidelity mannequins and/or role-players provided a high fidelity experience which as asserted by Gaba (2004) allows students to suspend disbelief and behave as they would in practice.

CONCLUSIONS

This study has evaluated simulation within the context of an integrative constructivist paradigm which is at variance with the predominant approach reported in the literature. The evidence from this study supports the integrative pedagogy and the incorporation of key success indicators as identified by Issenberg (2005) and Jeffries (2005). The study demonstrates the importance of formative assessment, self assessment and highlights the variations in student performances. The use of an analytical assessment rubric derived from practice with established inter-rater reliability adds strength to the findings.

Although the students in this study acknowledge the inherent challenges of this approach they were almost universal in their support of the module. Significantly all students agreed they would recommend this module to others and a large number suggested that this approach would be of benefit throughout the four year programme.

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FACILITATING LEARNING THROUGH AN INTEGRATED CURRICULUM DESIGN DRIVEN BY PROBLEM-BASED LEARNING: PERCEPTIONS OF SPEECH AND LANGUAGE THERAPY STUDENTS

Catharine Pettigrew

The BSc (Hons) in Speech and Language Therapy (SLT) at University College Cork (UCC) is a four-year full-time undergraduate program, with approximately twenty-five students in each year (including five mature students per year). The curriculum design is a hybrid Problem-Based Learning (PBL) model. Catharine helped to design the third-year curriculum, focusing on acquired neurogenic communication and swallowing disorders, and is a Problem-Based Learning (PBL) tutor.

“The readings, the practice education lectures, the phonetic lectures, the opinions of my colleagues and my own research are all pieces of the jigsaw puzzle. Only after we put all these pieces together are we able to solve the jigsaw puzzle” (Participant 2xxii).

This project focused on the hybrid Problem-Based Learning (PBL) curriculum design used in the BSc (Hons) in Speech and Language Therapy, and aims to discover whether students perceive it to be integrated, and/or facilitative of integrative learning. As a part of this aim, I want to determine what sources students draw from to facilitate their learning (e.g. discussions with colleagues; the internet; lectures/workshops). Data for this investigation was gathered from students’ reflective journals, which were developed as part of their PBL journey through the degree.

THE CONTEXT

All healthcare professionals, including speech and language therapists, have to cope with rapid changes in provision, fast outdated information and evidence, and increasing complexity of practice. As a result, professionals in practice need to be competent in self-directed learning, and able to keep up with these rapid changes in the evidence-base for their practice. Accordingly, undergraduate and postgraduate qualifying curricula in the healthcare professions are starting to look at new pedagogical methods which are thought to help to develop self-directed learning skills in their graduates. For example, Problem-Based Learning is becoming a popular method of teaching in the medical and healthcare professions.

Problem-Based Learning (PBL) is a student-centred approach to learning in which student knowledge is developed during the process of studying problems or real-life scenarios (Charlin, Mann and Hansen, 1998; Morrison, 2004). Students define their own learning objectives based on the ‘triggers’ within the problem case or scenario, then study independently in a self-directed manner before discussing and refining their acquired knowledge in their tutorial groups (Wood, 2003). On analysing the trigger/problem, learners identify the relevant information provided and try to predict what the issues and consequences of the problem might be, *prior* to formal study. Once learning issues have been set, learners leave the tutorial and engage in self-directed study over the next few days, accessing any number of sources for information (e.g. read books and articles, search the internet, explore models and consult faculty). Upon reconvening a few days later for a tutorial, students are provided with opportunities for in-depth discussions of their findings. There may be an additional period of independent searching of the literature followed by another tutorial to cover all of the learning, issues, and then finally, at the completion of a problem, students reflect on their experience of the process for that problem, and evaluate their own performance as a group and as individuals. PBL has been identified as one way to facilitate the development of self-directed learning skills, which may then persist throughout professional careers (Norman and Schmidt, 2000; Williams, 2004; Colliver, 2000).

Interestingly, in the field of speech and language therapy (SLT), departments/faculty have generally taught their students using a modular, subject-based approach to delivering a curriculum, whereby subjects are taught across the university, with learners attending courses in linguistics, anatomy, physiology, audiology and education. The disadvantage of this approach for a qualifying degree for any health profession is that these subjects are taught by separate departments/faculty, often unfamiliar with the nature of the health profession involved, and/or the teaching philosophy or curricular goals of the health professional department. In addition, there is limited explicit integration of these courses as a coherent whole, which could result in fragmented learning (Fourie, 2008). This approach leaves SLT learners to somehow assimilate and synthesise these units of information into a meaningful gestalt for themselves as professionals-in-training, and then apply this effectively to clinical situations (Fourie, 2008).

Alternatively, a PBL curriculum endorses a more constructivist epistemology, thereby lending itself to more effective integration. It can facilitate the integrative learning necessary for effective clinical reasoning and case management skills in qualified SLTs. Ideally, all aspects of a Speech and Language Therapy curriculum could be delivered using an integrated PBL approach, as the goal of PBL to facilitate the acquisition of knowledge on a deep level (thus developing clinical problem solving) could be attained by integrating various disciplines into each problem (Fourie, 2008). This means that psychology, linguistics, communication disorders, audiology, neurology and physiology would all be delivered as a series of coherent problem triggers that are integrated to form a complete curriculum. In line with a constructivist epistemology of learning, each problem would incorporate a number of subject areas simultaneously (e.g. aphasia associated with dementia, conversational analysis techniques, psychosocial impact on carers, swallowing disorders), rather than simply embodying a different subject area in each problem (e.g. dementia).

However, institutional and time constraints often mean that the most realistic delivery of a PBL curriculum in Speech and Language Therapy is the hybrid method, with some modules being delivered in lecture/workshop format, outside the PBL tutorials. Furthermore, often in professional courses there are certain 'psychomotor' skills relating to the profession that are not easily acquired in PBL format (e.g. how to engage with a client in therapy, instrumental voice assessment, grammatical analysis, or assessment tools), but are instead best delivered through a practical workshop or experience. Acquisition of such skills may require procedural knowledge that is not necessarily accessible through PBL.

In order to maximize potential for integrated learning across components, or modules within a hybrid curriculum, faculty can design the curriculum in a way that is driven by the problem trigger in question each week, that is, the lectures/workshops/practice experiences that accompany the PBL tutorials during that week can focus on the same topic/issues that arise in that particular problem. In this way, students can draw on this wider range of resources (e.g., lectures, workshops, practical experience) more effectively as they progress through the steps of PBL, acquiring knowledge in an integrated way. This is extremely important also given that one of the main goals of PBL, the development of self-directed learning skills, is a process that is not limited to the tutorial group, but involves the students interacting with many different knowledge resources and undergoing a variety of learning experiences (Fyrenius, Bergdahl and Silén, 2005). Thus, any PBL-driven curriculum should be designed in a way that is *integrated*, in order to facilitate *integrative* learning, or the ability to make connections.

The curriculum of the BSc (Hons) in Speech and Language Therapy at UCC was systematically and carefully developed as one such hybrid model of PBL, whereby the core modules in Communication Disorders for years one - three (comprising 50% of the module credits per year) are taught using PBL, and the remaining, smaller modules (e.g. anatomy, language sciences, speech and hearing sciences, physiology, practice education, research methods), are taught as supplementary workshops/lectures. Whilst the PBL module(s) are considered the driving force of the curriculum, the topics covered in these supplementary lectures/workshops are ideally explicitly linked (integrated) with the topics covered in the PBL module, week by week. All those involved in the design of this curriculum aim to ensure that this integration of module content is explicit and consistent, in order to help students synthesise and assimilate information effectively; 'making connections' (i.e. in order to help integrative learning take place). Students would thus be able to draw on their lectures/workshops as sources of knowledge that could be brought to their PBL tutorials, discussed, and applied to the problem at hand, in addition to any background knowledge or knowledge acquired from independent study. In this way, students would not emerge from four years of university education with neatly separated packages of knowledge in separate subject areas (e.g. anatomy, linguistics, psychology), but with an integrated, holistic perspective of speech and language therapy as a profession, fully prepared for clinical practice as self-directed, life-long learners.

FRAMING THE QUESTION

When I was invited to be a part of the Irish Integrative Learning Project (IILP), based on my experiences in developing the third year curriculum for the BSc (Hons) Speech and Language Therapy, I started to think about our curriculum from a quality assurance perspective. I understood that the focus of the IILP was to document and describe work that we have completed in relation to helping students 'make connections' and be effective integrative learners, so my mind immediately leapt to our integrated, hybrid PBL curriculum in years one to three, described above. A gaping hole revealed itself straight away: we have this lovely integrated curriculum, but we had never actually determined whether or not students felt the same way about it, or whether its design facilitated their learning or not. Furthermore, we had never investigated exactly what sources students felt most facilitated their learning throughout the PBL curriculum. From my experience as a PBL tutor, I had the sense that these sources of knowledge/information are wide-ranging, and go well beyond the curriculum we have so carefully designed. For example, anything from characters of medical television dramas and soap operas, to studies in peer-reviewed journals, can come up in PBL group discussion about a particular topic. Without formal investigation, we could only speculate as to how our students learning is being facilitated, and thus remain stuck in the rut of our assumptions about the effectiveness of our curriculum design. As a result, I developed the following questions:

- a) Do the students perceive the hybrid PBL approach to be helpful in facilitating integrative learning?
- b) What different sources do they actually use to facilitate their own integrative learning?
- c) Do they perceive the PBL curriculum to be integrated?
- d) Do they perceive the augmentative lectures/workshops/practice experiences to integrate effectively with the PBL curriculum?
- e) Do they use these lectures/workshops etc as sources of information for facilitating their learning within PBL?

As you can see, these questions are all quite similar, so I refined them to form the aim of the current project: to investigate student perceptions of the degree to which they have been able to facilitate learning by integrating knowledge and skills from different sources (e.g. tutorials, lectures, personal

experiences, readings from the literature); and which particular sources students perceive facilitate integrative learning in Speech and Language Therapy. I was not interested in finding out whether or not the students *liked* the curriculum as such, but whether they felt it was facilitative for their learning, and helping them to 'join the dots' in the way that we privately hoped.

GATHERING THE EVIDENCE

Whilst the research question was forming itself in my mind for this project, I realised quickly how simple it would be to gather the evidence. As part of continuous assessment in our PBL curriculum (years one to three) within the BSc (Hons) Speech and Language Therapy programme at University College Cork, Ireland, students are required to complete a reflective journal report (1000 words) each semester. One of the questions students are provided with to help structure this report is: *"To what degree have you been able to facilitate learning by integrating knowledge and skills from different sources – tutorials, readings, internal and external lectures, discussions with colleagues, your own experience?"* Having obtained ethical approval from the Social Research Ethics Committee at UCC, I gathered evidence from the journal reports of forty students from the year 2007-2008 (nine first-year, sixteen second-year and fifteen third-year students).

For each journal, I carefully read through their response to the question outlined above, and transcribed it onto a new document (removing any identifying information). Some students had elected to write their journal report as one narrative, rather than dividing their responses into questions/headings. When this occurred, I carefully read through their whole narrative and identified statements that related to their perception of what sources facilitated their learning. Once all the responses and statements had been identified and transcribed onto the new document, I analysed the content of the data by reading the responses and underlining relevant phrases. These relevant phrases, or 'codes', were then further analysed and themes were generated based on the codes that most commonly occurred throughout the data for each year group.

EMERGENT FINDINGS AND BROADER SIGNIFICANCE

The findings were that first year students emphasised personal experience and discussions with PBL colleagues as the most important sources of information that facilitated integrated learning, but felt they had not been able to facilitate learning to much degree by integrating knowledge from introductory lectures.

"Undeniably, my sources of knowledge to date have been limited, mainly deriving from my tutorials, the readings, discussions with my colleagues [and some from previous experiences].... With regards to lectures we are only at the introductory stages and therefore thus far this has not been an adequate source.....As the semester continues, I expect a cross-transfer of information from problem to problem, and also from lectures." (Participant 1xii)

In contrast, second and third year students emphasised lectures (e.g. anatomy, speech and hearing sciences, research methods) and practical workshops, along with PBL readings and their own internet searches, as important sources for integrating knowledge and skills. In addition, clinical and personal experience was particularly emphasised by third year students. Across all three year groups, but particularly second and third year, the students felt the explicit links between content across modules greatly facilitated integration of knowledge and skills.

"This year we are invited to take a cross-curricular approach to the topics of our second year curriculum, which are not only covered in PBL but also in Speech and Hearing Sciences, as well as Practice Education...In PBL there is a coming together of all these disciplines, and a chance for us to express what we encounter in the other courses and link it together. This is very helpful as it is often not until you literally tie the information together that it makes sense in the larger context of Speech and Language Therapy. This has happened more than once this term, and I feel I have benefited greatly from the group discussions integrating all our subjects in the PBL setting." (Participant 2xxi)

"I like the way that each week all our lectures are integrated to focus on a specific disorder as it reassures me that the material is very much geared to clinical adaptation." (Participant 3v)

Thus, integrative learning was perceived by students in this study to be facilitated more effectively via curriculum design *following* their first year, after they had moved on from the more generic, introductory curriculum content to the more specific topics covered in years two and three, and after they had begun to develop their self-directed learning skills through PBL. These findings have possible implications for the curriculum design of first year in the BSc (Hons) Speech and Language Therapy, if integrative learning is to be effectively facilitated from the start of the programme.

CONDITIONS FOR DOING THE SCHOLARSHIP

I was delighted with this opportunity to be a part of a wider research group consisting of collaborators from a number of different universities and institutes of technology, from a wide range of disciplines, and felt supported throughout the whole process. The project leaders kept in regular touch which each of us involved in the group, and encouraged many supportive initiatives such as mini-reports to share progress and ideas, 'critical friends' as a method of supporting each other through peer mentoring, and regular face-to-face meetings. I also received much support from my departmental colleagues, who not only developed and teach on our BSc (Hons) SLT curriculum, but also have much practical and research experience in this topic area of PBL teaching and research. Much of the context for this project, outlined earlier, was informed by previous publications from our department on PBL as a pedagogical method in Speech and Language Therapy. With such support, I have found this project to be not only smooth-running, but enjoyable and of great interest to many people, not only locally but internationally.

BENEFITS OF THE WORK

As I am sure many of the project collaborators have found, one of the most important benefits of this work for me was the realisation of the importance of documenting student perceptions and feedback on the curriculum: not just the content, but the *methods* by which we try to help them learn. All the goodwill in the world is not enough, if our assumption, that what we do is working, is never challenged. Framing the question for this project made me think deeply and carefully about the nature of our chosen pedagogy. Being a part of this collaborative project on integrative learning has introduced concepts of vital importance to my daily thinking about my teaching. Concepts such as 'synthesis', 'integration', 'making connections' had previously been unnamed entities/thoughts during my contributions to curriculum development, but have now lit the path for me in terms of reviewing and refining the curriculum to best facilitate our students and their learning.

LESSONS LEARNED

Certainly one of the lessons learned during this project was the importance of challenging

assumptions about our teaching methods. This is a dynamic process, requiring regular review of the curriculum and student input/feedback on both the content and the methods/process. The advantages of doing this as part of a broader group (e.g. within a school or college, rather than just within a department/stakeholder group), would include peer feedback and fresh ideas regarding pedagogy. As suggested by Gale (2006), there is a need for integration of pedagogies in support of deeper, more connected, and more inclusive student learning. *"In fact, just as integrative learning is the connection of ideas, experience, and inquiry, pedagogies of integration may be best understood and facilitated through collaboration among faculties, administrations, and of course, students"* (Gale, 2006, p.10). The hybrid PBL curriculum described in this project is one example of integration of pedagogies within a discipline (SLT), but there is no reason why we cannot do this from an interdisciplinary perspective, to further facilitate integrative learning amongst our students.

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BUILDING STUDENT ATTRIBUTES FOR INTEGRATIVE LEARNING

Bettie Higgs

Over the past few years, at University College Cork, the first year Geoscience residential field-course has broadened its scope to bring in new skills and new perspectives – not only for the students – but also for the staff involved in the undergraduate programme. At the heart of the transformation was the desire to help students discover the interconnectedness of the separate modules they study, and make meaningful connections within the geosciences, and between neighbouring disciplines. Hence, the course was designed to give students multiple opportunities to connect-up their learning. As the course moved from design to enactment, student engagement was monitored, and evidence of ‘connection-making’ was collected. The results of this study have been published elsewhere (Higgs, 2008; Higgs and Hall, 2008), and so the following short contribution will highlight only additional insights into building capacity for students’ integrative learning in the field setting.

All of the students (ninety each year) engage in pre-field work preparation. This involves campus-based literature research, and collaborative group work. Each group investigates a different aspect of the geosciences. A large amount of information is built up, and questions are raised, that relate to the field area. Students become primed not only for the geological field work, but also for the valuable peer-learning that is promoted with this approach. As one of the course assignments, each group must link and enhance their campus research with new knowledge gained during the field work. Included in this, groups must identify connections between their work and other disciplines they study in their first year. This brings a level of ‘unpredictable learning’ which has proved highly desirable, causing students to become more engaged in the academic work, as well as in the social experience that residential courses offer. A learning outcome focused on ‘integrative learning’ and ‘connection making’ allows for this breadth of learning, and allays the fears of those who believe that a learning outcomes approach to course design is too restrictive.

During the field-based component of the course, the students work in their same collaborative groups, guided by a leader. Traditionally students went into the field with a blank notebook, and were encouraged to make sketches and notes capturing what they observed. Commonly the notebook would capture only what the leader had said, and students could gain a high mark for their ability to do this. Now, a workbook has been introduced to help students through the crucial process of observation, where they must take time to look at a rock exposure or natural feature from multiple perspectives, before recording what they see. Pulling together important aspects of the natural world into a sketch, or a set of brief notes, is the student’s first experience of thinking and acting ‘like a geologist’. It is an exercise in synthesis. The data collected must then be used in the evening exercise, back at the field base, to reason and justify emerging interpretations. In this setting, students are encouraged to formulate questions, and ask for help. Such opportunities for discussion and reflection proved powerful in beginning to build the student (and staff) attributes identified as necessary for integrative learning (Huber and Hutchings, 2004; Higgs, Kilcommins and Ryan, this volume).

The evidence waiting to be uncovered and discovered in the ‘natural laboratory’ of the geoscientist allows multiple opportunities to connect with other disciplines. The intentionally designed opportunities in this course were built around concepts in geophysics, geochemistry, palaeontology, geography, the history of science, and community engineering projects, to name but a few. Some students engaged more than others, but data showed that the overall level of engagement for everyone increased. One set of data that was collected stemmed from a questionnaire asking students to report on ‘how they learn best’. The data before and after the field component showed interesting differences. Before the field work began, students had a narrow perception of how they learn, with

examples being heavily dependent on the 'lecturer' and good note-taking. At the end of this field-based module, a much broader appreciation of ways of learning was apparent (Figure 1). For example, Figure 1 shows that two explicitly integrative skills, drawing on existing knowledge and questioning, have a relatively high importance. Yet on the first evening of the field course, only two students included 'questioning' in their 'how do I learn best' responses. Figure 1 also shows that the first-years students had recognised the importance of peer-learning, and challenged their previous feeling of dependence on the lecturer. Data sets such as these give leaders insights into skills that could be practiced and enhanced in the second year of the programme.

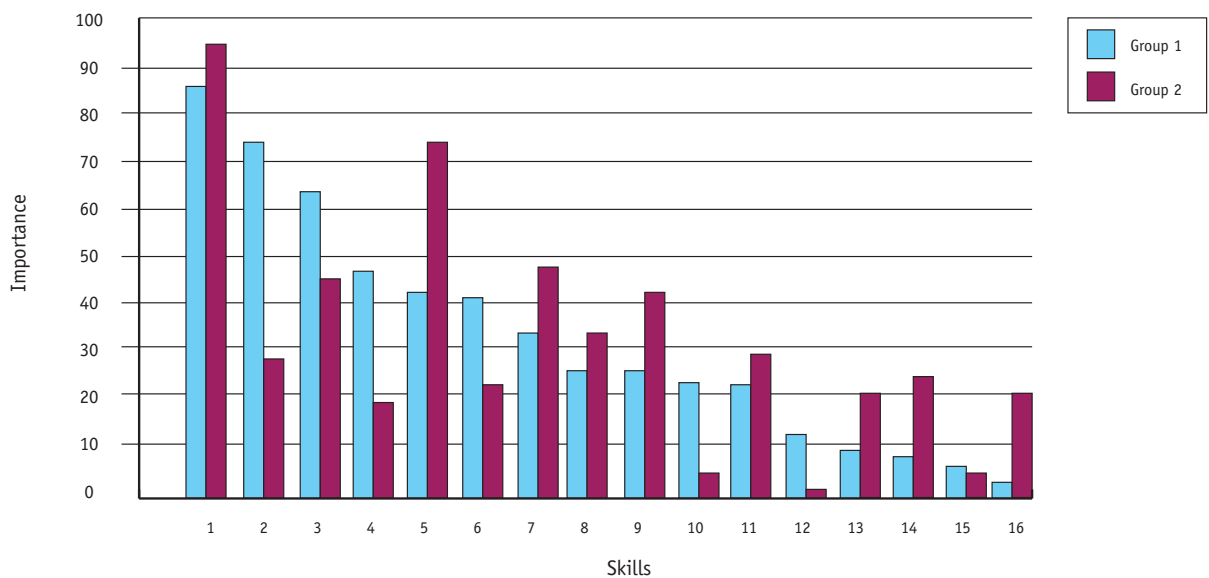


Figure 1 Student perceptions of skills practiced in the Module (forty students responded in each group)

SKILLS

(sorted by Group 1 perception of importance)

1. Teamworking
2. Individual research skills
3. Brainstorming
4. Group research
5. Communication
6. Organisational leadership
7. Drawing on existing knowledge
8. Analytical/critical skills
9. Questioning
10. Written
11. Verbal
12. Prioritising
13. Decision-making
14. Making judgements
15. Collation
16. Challenging assumptions

INSIGHTS INTO INTEGRATIVE LEARNING

The evidence so far gives us many rich insights into student learning, but put quite simply:

- *There are links/connections that the students made themselves (self-initiated).*
- There are links/connections that leaders or peers provoked (students rely on being presented with opportunities).
- There are links/connections that leaders or peers pointed out (students do not make the effort themselves).

The evidence shows that students do not belong to one category alone, but depending on the complexity of the connection, and their attitude, motivation or inclination at any one time, they move between the categories. However some students will be in the first category more often than others. These observations map very well onto Ron Ritchhart's internal-external model of dispositions (Ritchhart, 2002). Ritchhart believes it is not always student ability that is lacking, but rather a lack of inclination to perform. The preparatory group work, the field activities and the evening discussions offered in this geoscience course provided varied and multiple opportunities for students to 'perform', in authentic and meaningful contexts. This, together with an assessment strategy that rewarded attitudes to learning and engagement, served to increase student inclination to perform.

These insights into performances of integration can help us to better craft the opportunities designed to build students' capacity to be integrative learners. However, the students must be aware of the opportunities, and know what action is appropriate. For appropriate actions and attitudes in the field to be developed, the leaders need to be aware of their own behaviours. In the words of Huber and Hutchings (2004), leaders who try to promote a disposition, may not succeed if they do not themselves have that disposition.

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END-GAME: GOOD BEGINNINGS ARE NOT THE ONLY MEASURE OF SUCCESS

Tony Ryan, Bettie Higgs, and Shane Kilcommins

The Irish Integrative Learning Project (IILP) was developed as a NAIRTL-funded, multi-institutional, multi-disciplinary research project to promote small-scale initiatives that foster integrative learning in higher education institutions in Ireland. One of the aims of the project was the development of a learning community of integrative teachers who would investigate and document examples of integrative learning in higher education, and produce clear and practical resources for all teachers. The specific objectives of the IILP were to identify whether integrative learning was taking place in our campuses and to document examples of programmes/courses/activities that are designed intentionally to build students' capacity to be integrative thinkers and learners. In addition, as project leaders, we wanted to further develop curricular and pedagogic resources to help other teachers bring the theory and practice of integrative learning into their classrooms and communities. We wanted to grow the integrative learning educational capacity, nationally and internationally, through high quality, research-focused teaching initiatives that could act as stimuli for further understandings of integrative learning. Finally, we were conscious from the outset, of the need for systematic, reliable and relevant data collection that would allow us to describe, share, discuss and disseminate during the design, planning, implementation, evaluation and reporting stages of the project. In this concluding chapter, we ask whether we have achieved our aims.

The Outcomes Logic Model (OLM) was developed by the W.K. Kellogg Foundation (2001) to serve as a platform for systematic ways of presenting a planned programme with its underlying assumptions and theoretical framework. In this era of "scientific" education, research funding bodies are demanding evermore transparency and accountability, in addition to evidence of effectiveness and efficiency and good educational practices. For these reasons, we used the OLM to provide a structured, systematic approach to developing, implementing and evaluating the IILP.

At our inaugural meeting, we used the OLM framework to clarify our objectives, and guide participants through the structure and purpose of the project. At subsequent meetings, it was used to document to what extent proposed outcomes had been achieved. Our OLM table consisted of five columns (Table 1), derived from three broad themes: Antecedents (the Context, Stakeholders and Resources of the project); Process (the Activities needed to implement the project) and Evaluation (the Outputs, Outcomes and Impacts of the project).

In the first column of the OLM table we explored and deliberated on our understandings and shared meanings of the concepts of integrative learning. We decided what the project was intended to deliver and what impact, in the long term, it is intended to create. We were aware of the importance of having *a priori* measurable research outcomes for the IILP. We revisited the OLM framework regularly, to ensure we were on target. Time and again we reminded ourselves of the need to collect data and to distinguish between outputs, outcomes and impact.

The OLM encouraged us to frequently clarify the objectives of the project: what exactly we were trying to achieve and how we could measure the impact. We used our collaborators' workshops to build a shared meaning of integrative learning as a theoretical concept, to list the key attributes of an integrative learner, and to explore the implications and potential practical frameworks for curriculum design. This allowed us to discuss and collate the proposed disciplinary research projects, to identify meaningful and measurable outcomes and to establish timelines.

We noted that integrative learning involves a curriculum design and delivery approach that is intended to have participants fully engaged in practical and breakthrough learning that sticks, and engages the body, mind, heart, and spirit of the learners. It *“comes in many varieties: connecting skills and knowledge from multiple sources and experiences; applying theory to practice in various settings; utilizing diverse and even contradictory points of view; and, understanding issues and positions contextually”* (Huber and Hutchings, 2004, p. 13). As participants progressed through our workshop discussions, we realised that we were beginning to become more integrative in our own thinking, and more intentional in our curriculum planning for integrative learning. These discussions opened up more questions for the group such as: Is there a language for integrative learning that we can share? Is there evidence that integrative learning works, and if so where is it? What assumptions are we making about integrative learning? Is it worth the effort and is it cost-effective? Will we produce a better or just a different type of graduate?

We agreed that students often have fragmentary learning experiences, in most disciplines, in third level education. As a result, they may fail to make meaningful connections within and between subjects and disciplines. If knowledge becomes ‘troublesome’ students may have difficulty grasping threshold concepts that are essential for their development in their discipline (Meyer and Land, 2003). By building capacity for integrative learning, we believe that threshold concepts can be negotiated by students, allowing them to advance in the construction and application of their knowledge. Our project was underpinned by a concern expressed by Klein (2005, p. 10): *“the answers students seek and the problems they will need to solve as workers, parents and citizens are ‘not in the book’*. We wished to build students’ capacities to connect-up and integrate their learning by providing opportunities that encouraged all students to carry their disciplinary skills and understandings from one learning landscape to another.

Having identified the challenges, the OLM encouraged us to identify our target audience, potential stakeholders and resources (Table 1). We began to realize that our audience was in many ways ourselves, the educators. We were all novice but self-motivated learners of the concept of integrative learning. While many potential stakeholders were listed (our institutions, disciplines, departments and colleagues) our students were deemed our most important stakeholders. *How could we make them think and link: make connections and become integrative learners?* We explored questions they might ask and assumptions we might be making about the student body and integrative learning.

By thinking strategically and systematically through the OLM approach, we identified a number of influential factors that could determine the success of our project. We noted the resurgent emphasis on the scholarship of teaching in our institutions as an influential driver for the IILP. A competitive NAIRTL grant award (€20,000) was essential in driving the project. At participant level there was a desire to improve the students’ experience by helping them overcome the potential fragmentation as a consequence of modularisation and mobility. Our most important assets (Table 1, Column 2) were the broad and diverse experiences of the project participants, their students, and the prospect of multi-institutional and interdisciplinary interactions. While clarifying potential IILP disciplinary case studies, we decided to be open and all-encompassing, with the result that examples included consideration of curriculum-design, pedagogy and assessment. Recognising the limited protected time available to participants for educational research, we expected the projects would address integrative learning questions that could be explored as part of their everyday work, and within their own classrooms. Thus, our projects were subject-centered and authentic as advocated by (Kreber, 2007).

The project leaders' main functions during the twelve-month implementation period, were to maintain the management plan, revise time-lines, and sustain connections with and between the participants through structured meetings, email, web-postings and dialogue on the NAIRTL/IILP website. In implementing the IILP (Table 1, Column 2), we referred to good practice used by other groups (Carnegie Academy for the Scholarship of Teaching and Learning, USA, and the Centres for Integrative Learning, University of Nottingham and Active Learning, University of Gloucester, UK).

The concept of *critical friends* was introduced in the second project meeting. A critical friend is a trusted person who asks provocative questions, allows research data to be examined through another lens, offers critiques of a person's work and is an advocate for the success of that work (Costa and Kallick, 1993). Participants were matched as potential critical friends, according to practicality, compatibility and availability. Reports on the contacts between critical friends were posted on the IILP website. An international associate (Prof. Alan Booth) was invited to critique and support the individual project members through one-to-one meetings.

During each project meeting, we familiarised ourselves with the distinctions between Outputs, Outcomes and Impacts as conceived by the OLM. An Output is a number of what was created and what was delivered by the activities of the IILP. We had no problems in documenting outputs (examples are given in Table 1, Column 3). Relevant outputs include the NAIRTL reports, a NAIRTL publication documenting individual research projects and a symposium to disseminate the research findings and expand the IILP network. In addition, the materials and pedagogies developed by the participants in the fourteen research projects (e.g. marking schemes and rubrics) are important outputs now available to the larger teaching community.

An Outcome (Table 1, Columns 4-5) refers to a behavioural change in people (knowledge, attitudes or skills) or an organisation, in this case engendered by the IILP. Staff development, and the impact that has on student learning, were the most important short-term outcomes of the IILP. The staff have connected with other academics institutionally, nationally and internationally. The research projects, the new knowledge and understandings generated and the motivation to complete showed that participants were transformed during the IILP (Table 2). In their writings, researchers showed a deepening understanding of the nature of integrative learning, and how it can be promoted. They developed a new language with which they can debate, consolidate and disseminate their practice. They have become more intentional in their teaching, and are documenting the elements and activities that nurture integrative learning. Pedagogies and teaching strategies known to provide rich opportunities for IL, including problem-based learning, reflective-portfolios and critical friends, are being used (Table 1). The IILP researchers pursued scholarly approaches to collecting and analysing evidence for 'opportunities to connect' in their research projects. They have shared these insights and ideas as well as strategies to clarify their pedagogical goals and how students' connection-making can be strengthened at multiple levels. They have observed important changes in student behaviour as a result of engaging with activities that are designed intentionally to promote integrative learning (Table 2).

The most important and the most difficult outcomes to measure for any project are its impacts or seven to ten year outcomes (Table 1, Column 5). One of our most important IILP outcomes was the bringing together of a diverse, multi-institutional, multi-disciplinary group of participants who were concerned about the potential of fragmentary learning experiences: in other words the development of a learning community of teachers and educational researchers who could themselves model integrative learning. We expect that there will be increasing inter- and intra-faculty discussions that will advance institutional understanding and the value of this integrative learning community. We believe that the understandings gained by teaching staff in this project will continue to enhance

student autonomy, allowing them to continue to make meaningful connections in their learning throughout their lives.

It has been said that: *Everything will be fine in the end. If it's not fine, it's because it's not the end.* While we believe the IILP has been considerably more successful than we had anticipated, it is not the end; but (to paraphrase the Chinese philosopher, Lao-tzu) it is the first stumbling step in the journey of a thousand miles, towards a larger learning community of integrative teachers and learners in Ireland and beyond.

1. Context, Stakeholders & Resources	2. Activities	3. Outputs	4. Outcomes Short-Medium Term (See Table 2)	5. Impact Long-Term Outcomes Expected
Definition of IL Shared meaning of IL Context of IILP Content of IILP Why IL now? What were the aims of IILP? What were the specific objectives? Who were the potential stakeholders? -Students -Educators -Colleagues -Disciplines -Institutions -Community -Employers -Government What assumptions were being made about stakeholders? How to use the NAIRTL Grant wisely/equitably	Preparatory work by leaders & participants exploring national & international good practices One-day IL workshops Inviting international speakers Individual curriculum research projects <i>Envisioning</i> <i>Designing</i> <i>Developing</i> <i>Implementing</i> <i>Evaluating</i> <i>Writing</i> <i>Presenting</i> Web-page discussions Meeting Critical Friends Developing & maintaining time-lines	18 Participants 5 Workshops 14 Curriculum Research projects 1000 Students exposed to increased IL opportunities Hours of IL teaching (not calculated) New Learning & Assessment Materials (see chapters) 10 National/international IILP presentations 2 NAIRTL reports 14 Book Chapters Founding of the IILP Learning Community Project Dissemination Symposium IL Theme of National Conference	14 Courses showing evidence of: New knowledge / understandings created (teachers & students) Changes in pedagogical style & content Teacher no longer afraid of "loss of control" Self-development as an Integrative Teacher ↑ Student centered-teaching ↑ Student engagement ↑ IL Capacity building Increased student attendance and retention On-going peer support Future plans for IL promotion	Extended national & international multi-disciplinary IL Learning Community Discipline-based programmes with IL as an explicit goal Students carrying and using integrative approaches beyond their formal training IL becomes accepted policy for all higher education programmes

Table 1: Summary of the Logic Outcomes Model for the IILP

(↑ = increased. IL = Integrative Learning)

<i>Teachers no longer afraid of loss of control</i>	"You have no idea of where the students are going to go." "You realise the importance of letting go of control." "I no longer am afraid when I don't know everything." "It excites me when students know something I don't know."
<i>Student-centered pedagogy</i>	"You realise the importance of getting students into the mindset – scaffolded, prompted, guided by us." "I have become more facilitative- more aware of my function as a role-model."
<i>Self-development as an Integrative Teacher</i>	"Now I am more strategic in my preparation." "I ask "What do I want them to know, and why?" " "Achieving higher order thinking is rewarding to the teacher as well as student." "I have become more metacognitive in terms of my teaching." "As a teacher, I'm not done with learning yet!" "If we want our students to change, we, as educators, must also change." "We can help students to make connections & integration through an intentional, democratic approach to teaching." "We need to recognize the importance of context." "We need to change our assessment methodologies to assess IL" "We must try to identify discipline specific Threshold Concepts."
<i>Teacher observations on students following IL experiences</i>	"Student attendance has increased; their confidence and interest has increased." "Students who were not turning up – are now turning up." "I was observing the students more, and how they reacted." "We tried it [integrating Maths and Zoology]. We saw an excitement, a buzz." "There is a lot of overlap between what we got out of it and what the students got out of it." "I would never have done that before [I now explain what I want them to do with their reflective journals]." "Student said: <i>"It was the first time ever that I had really used economics. Once you have used it, it is yours forever."</i> "Students can be confused by integrative learning if there is a misalignment between theory and practice, if there is a disconnect."

Table 2: Examples of themes and comments on integrative learning experiences captured during the 4th IILP workshop

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- About NAIRTL: The Irish National Academy for the Integration of Research, Teaching and Learning promotes innovation, supports development and sustains good practice that links research with teaching and learning in thirty-eight higher education institutions. The Academy is a collaborative initiative between University College Cork, Cork Institute of Technology, National University of Ireland Galway, Trinity College Dublin and Waterford Institute of Technology. NAIRTL is supported by the Higher Education Authority Strategic Innovation Fund.
- About this book: In this volume we document examples of programmes/courses/activities that are designed intentionally to build students' capacity to be integrative thinkers and learners. In doing so we try to analyse and name the learning that is taking place, and so make it visible to the reader. The work is intended as a resource for all those involved in teaching and student learning in Higher Education and beyond. The ultimate goal is to ensure that students in higher education can make meaningful connections within and between disciplines, for example by integrating on-campus and off-campus learning experiences, and tying together and synchronising different perspectives and ways of knowing.

