# UNIVERSITY COLLEGE CORK
# AS A LEARNING ORGANISATION

**Edited by ÁINE HYLAND**

**July 2004**

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# *Foreword*

I welcome the publication of this report – University College Cork as a Learning Organisation. I congratulate those who were involved in its preparation – in particular the authors of the various chapters who played a very important role in ensuring that UCC responded creatively and constructively to the challenges and changes of the past four years.

In July 2000, in my foreword to Agenda for Excellence – UCC's Strategic Development Plan 2000 – 2005, I referred to the fact that UCC was facing a period of enormous and unprecedented change and I predicted that we would have difficult choices to make in the years ahead. I stated that "our ability to navigate ... uncharted waters and to make corrections when necessary will be tested". Since the test of a successful learning organisation is its ability to respond and adapt to new situations; to be open to trying new ways of doing things; to reflect on successes and failures and to learn from mistakes, the challenge to UCC was to demonstrate its effectiveness in these arenas.

This report provides evidence that in the area of teaching and learning, staff in UCC have risen to the challenge which was presented to them in the Agenda for Excellence. UCC's strategic plan focused on enhancing the quality of the educational experience of our students and on improving the structure and content of our academic programmes. These were ambitious goals but I expressed confidence in July 2000 that these goals were achievable. I am pleased that my confidence was well-placed and that so much has been achieved within the past four years. Programmes and teaching strategies have been reviewed; new and more appropriate forms of student assessment have been introduced; the increasing diversity of the student body has been recognised and responded to, and new information and communication technologies have been exploited to improve the opportunities for teaching and learning – both for students and staff. UCC's success as one of Ireland's leading research universities is clearly matched by its success as a research-led teaching and learning university.

I would like to recognise the support given by the Higher Education Authority through its Targeted Initiatives Programme, to enhancing teaching and learning in UCC. A series of interrelated initiatives, including the President's Awards for Excellence in Teaching, Awards for Research on Innovative Forms of Teaching and Learning, review and revision of the Promotions scheme to ensure equality of esteem for teaching and discipline-based research, as well as projects on the Scholarship of Teaching and on Multiple Intelligences, were funded under the Targeted Initiatives programme and contributed to a renewed focus on teaching and learning within UCC.

The work chronicled in this report is a beginning – a learning organisation focuses on continuous review and adaptation. As Chris Duke has written in his book The Learning University, "universities can take in and use new information, adapt their identities, purposes and priorities to new environments and circumstances, change and survive – or fail to learn and adapt, atrophy and die". This report leaves us in no doubt as to the choice which University College Cork has made.

> **Gerard T. Wrixon,**
> **President.**
> **July 2004.**

# INTRODUCTION

*Áine Hyland,*
*Vice-President, University College, Cork and Chair*
*of the Staff Enhancement and Development Committee*

*The defining characteristic of the modern learning organisation is the readiness to recreate itself through a close understanding of its environment and the opportunities provided by that environment for both adaptive and novel ways of growing and developing ... The university should be, by definition, a learning organisation.*

(Malcolm Skilbeck, *The University Challenged* 2001)

The university, as an organisation in the "learning business" has both an opportunity and a responsibility to lead the way in developing creative and innovative approaches to organisational learning. This collection of articles demonstrates how individuals and groups of staff within University College Cork, have recognised opportunities for change and adaptation and have responded creatively and in an innovative way to the changing needs of their environment.

The developments and activities chronicled in this publication include changes in curriculum and assessment and in modes of course delivery, optimising the use of information and communications technology, and actions taken to improve and enhance student access, retention and progression. The articles range from the general to the particular and the collection starts with an overview by Cynthia Deane of the literature on learning organisations. To the question "What are the distinguishing characteristics of a learning organisation?" Cynthia suggests the following definitions:

◆ A learning organisation is continually expanding its capacity to create its future through applying a range of learning disciplines (Senge, 1990);
◆ A learning organisation facilitates the learning of all its members and continuously transforms itself (Pedler et al, 1992)
◆ A learning organisation forms the strategy, structure and culture of the enterprise itself into a learning system (Stahl et al, 1992)
◆ A learning organisation encourages double-loop learning (Argyris, 1990)
◆ A learning organisations makes many mistakes, but learns from them ... It sees learning, not as a confession of ignorance, but as the only way to live (Handy, 1992).

A key element of learning organisations is that practitioners are themselves enquirers, rather than passive recipients of the expertise of other researchers. This is particularly apt in a university context and as the articles in this collection show, many of the contributors have been engaged in a process of reflective practice, as described by Nona Lyons in Chapter 3. She maintains that the UCC experience "provides a case study of the dynamics of reflective engagement as professional development within the university".

In Chapter 2, Bettie Higgs talks about her role as co-ordinator of Teaching and Learning Support

within UCC and describes herself as "the reflective co-ordinator". This reflection led her to organise a series of lunchtime seminars and workshops on teaching and learning that resulted in an unprecedented level of involvement by academic staff in this enterprise. Upwards of 350 staff attended one or more of these seminars and Bettie's article refers to the culture change that is evident around the university where staff "have been set free to find new ways of promoting the students' conceptual development" and "can begin to view learning from the perspective of the learner, rather than the teacher".

Marian McCarthy's reflections in Chapter 4, on a mentoring programme within the university, refers to the learning that occurs and the confidence that develops when "colleagues share the same journey". She writes about the "interrelated nature of reflection, portfolio-making and mentoring, one giving rise to the other". To her, "reflection is not a linear, but a cyclical and incremental process" – a process that contributes to a successful learning organisation. Marian also refers to the significance of a bottom-up approach and maintains that a mentoring programme can only grow out of the needs and concerns of those being mentored. Mentoring, she avers, "cannot be imposed, hence its usefulness in providing one part of what a learning organisation looks like".

In Chapter 5, Derry Cotter continues the odyssey which he started in his 2002 article "A Diary of a Teaching Reflection". He uses the explanation given by the master carver when asked how he carved such a perfect image of an elephant, as a metaphor for how we can be excellent teachers. "*But how, Master? How do you make the shape? It's so lifelike!*" The reply from the Master: "*Master cuts away bits that don't look like an elephant*". Would that improving our teaching were as easy as that! How simple, if we could just identify the bits that were not good teaching, and cut them away!

John O'Halloran provides an excellent account in Chapter 6 of how a course in ecotoxicology was redesigned using a learning outcomes model to shape the approach taken to teaching and assessing. John adapted a model used to analyse environmental impacts, to measure the effectiveness of his revised approach to teaching and learning. The DPSIR model, which measures Drivers, Pressures, the State, Impacts and Responses, proved to be a very effective model for assessing the impact of his revised approach to teaching and learning and provided a structure for John's own reflective approach. This is a good example of how a particular discipline can provide a model from within its own theories and practices to improve teaching and learning.

Problem-based and task-based teaching and learning have been used in some disciplinary areas for the past forty years, especially in the Medical and Health disciplines. In chapter 7, Susan Ryan of the Department of Occupational Therapy, describes how she and her colleagues use task-based learning approaches in the new undergraduate degree course in Occupational Therapy. The theoretical underpinning of this approach are set out, and some excellent examples are provided of how a course can be developed using task-based learning. This is an approach which has led to a lot of interest in other professional departments of the university and more discussion about its potential is likely in UCC in the years ahead.

Chapter 8 provides a detailed description of how a team of staff in the Mathematics department set about designing and implementing a module on problem solving in Mathematics. The process and its results were meticulously documented by Tom Carroll and his colleagues, and the honest appraisal and reflective approach of the team in this curriculum development exercise provides an

example for colleagues in other subject areas. It is not surprising to find that the module has been so successful and that the UCC students who have taken it have won a number of awards in international mathematics competitions. A similarly honest and compelling documentation and appraisal of a novel approach to teaching German literature through Drama is provided by Manfred Schewe and Trina Scott in Chapter 9. They advise that language departments should advocate a variety of teaching methods in the teaching of literature, drawing a parallel with "the farmer who varies the crops he/she sows to keep the land at its most fertile".

Chapters 10 to 15 provide examples of how UCC staff recognise the potential of computers and information technology as a tool for enhancing teaching and learning. In Chapter 10, Sile Creedon discusses the challenges and the rewards of teaching Information Technology to undergraduate nurses. Ciarán Dawson, in Chapter 12, describes the forays of the university into wireless technology and the use of the mobile classrooms. While recognising that an innovative venture of this kind will challenge the "tried and tested" ways of doing things, he argues that the nature of a learning organisation is such that new opportunities have to be grasped. To quote Handy: "A learning organisation makes many mistakes, but learns from them". Wireless technology will without doubt, provide undreamed-of opportunities for flexibility in teaching and learning in the decades ahead. Current demand for access to computer networks and to the Web is documented in Chapter 12 by Grace O'Leary writing about student and staff demand for Blackboard software. Since Grace submitted her chapter, interest in using Blackboard has grown exponentially to the point that in May 2004, almost 70% of UCC students are registered users of Blackboard and one-third of them log on daily.

Online learning, on and off campus, will undoubtedly create major new challenges for the university in the years ahead, challenges which the university is now beginning to address, as documented by Anna Ridgway in Chapter 13 and by Olive McCarthy in Chapter 14. Anna describes and discusses the experiences of UCC staff who have availed of the opportunity to take courses online from various online providers, particularly from the WIDE learning platform at the Harvard Graduate School of Education, on aspects of teaching, learning and assessment. The experience of being an online learner is one of the best ways of understanding the issues which one's students will encounter in an online learning environment. It is heartening to realise that upwards of 30 UCC staff have participated in teaching-related online learning courses.

The title of Olive McCarthy's article "Square Pegs in Round Holes" is a very apt description of what it is like to introduce an online course in an institution, whose policies and practices were devised to cater for on-campus and "visible" learners – not for off-campus and "virtual" learners. To quote Olive: "At times, placing a distance learning student within the current university learning structures, has been akin to forcing a square peg into a round hole". Like the inventors and explorers of old, innovators such as Olive and her colleagues, must have a "can-do" philosophy and a persistence and determination to overcome the inevitable obstacles which they encounter on their uncharted journey. To those who ask them "Why" they are undertaking this journey, their answer has to be "Why Not?" To them, life is not about problems, but rather about solutions! We salute the Department of Food Business and Development for initiating this new B.Sc. course and we are confident that the university will ultimately benefit from the lessons learned from this initiative.

Another venture which drew heavily on information technology was the innovative and creative project developed by John Finn and Anne Crook for teaching research skills to undergraduate

researchers. This sophisticated Web-based programme is accessible on www.ucc.ie/research/stars and was the result of a successful bid for funding under the UCC Awards scheme for Research on Innovative Forms of Teaching.

In Chapter 16, Mary Breen writes about the development of an outreach programme in two centres in Co. Kerry where English is taught to degree level to almost 50 mature students. The success and popularity of this venture is evident, and UCC must take steps to ensure that these outreach students are given an opportunity to take other subjects to degree level so that they can graduate on an equal basis with their colleagues who are studying on the Cork campus. Mary raises a number of issues in relation to outreach programmes generally, some of which can only be addressed by changes in government practice. For example, the students on this outreach courses are eligible for neither fee exemption nor for grant support, due to government restrictions on both of these schemes. The issue of the need for credit accumulation and transfer is also highlighted here and this is an issue which UCC will have to address if outreach courses are to develop to any significant extent in the years ahead.

In Chapter 17, Aidan Moran chronicles the changes that have occurred in recent years to improve access to and progression within UCC, especially by students who have traditionally been under-represented in the university sector in Ireland – mature students, students from socially disadvantaged backgrounds and students with a disability. In this and in Tracey's Connolly's description of the Bridging the Gap project in Chapter 18, it is impressive to read of the commitment of the university to these students and the supports that are made available for them.

In Chapter 19, Maeve Lankford writes about UCC's success in achieving the FÁS Excellence through People (ETP) Award. She makes the point that a key feature of any learning organisation is the explicit acknowledgement of enduring and continuous change and adaptation as the only means to survive and thrive in any sector or marketplace. The ETP award is granted for a period of one year, and organisations require annual re-assessment by FÁS to maintain certification. In this way, the organisation is required to focus on a continuous improvement cycle. The features of the ETP model, and therefore of UCC, include many aspects which support the creation and sustenance of a learning organisation: on-going review and evaluation, understanding of the organisation and its environment and an ability to adapt and change.

In the final chapter, Éamonn Sweeney writes about Managing Change in a University. He argues that universities cannot replicate yesterday's practices to achieve success and states that "They will need to focus on options that will deliver the future rather than tinkering with structures that have delivered the past". He concludes that "change does not occur by following a well-defined path; rather it is a difficult journey toward an elusive goal with many potential wrong turns and missed opportunities. Only rarely does an organisation know exactly where it is going and how to get there".

This collection of articles from colleagues within University College Cork, presents an image of a university with many pro-active and constructive staff, willing and able to create change and to be active agents in the change process. For the most part, it is an encouraging story, and shows what can be done with enthusiasm, determination and limited resources. Many of the projects described in this publication became a reality as a result of funding made available by the Higher Education Authority under its Training of Trainers and Targeted Initiatives schemes. Relatively small

amounts of funding unlocked some great ideas and schemes. The success of so many of these ventures gives reality to the adage "Where there is a will, there is a way". In most cases, the policies and structures of the university did not prevent change although in some situations, the structures could have been more facilitative. Traditions and practices die hard, and the collegial nature of university decision-making, while impressive in many ways, can be used as a preventative measure by conservative colleagues who may not always agree with the change agenda. Developing new creative and innovative approaches is one thing – implementing them systematically across the university is another.

Universities have the opportunity to be change leaders. They should and must be learning organisations.

"*In a millennium in which knowledge has become the new economic capital, the universities – the traditional providers of knowledge – face both extraordinary challenges to which they must adapt, and extraordinary opportunities that they must seize. Natural selection operates in society more subtly than in the biological realm, but just as surely. Survival requires adaptation; it is those better fitted to their environment that leave descendants. The inadaptive perish*".

    (Frank Rhodes *The Creation of the Future: the Role of the American University* 2001).

# CHAPTER 1

## WHAT IS A LEARNING ORGANISATION, AND WHY SHOULD UCC TRY TO BE ONE?

*Cynthia Deane,*
*Options Consulting*

### 1. Context

University College Cork has been invited to participate in an action research project initiated by the National Centre for Partnership and Performance (NCPP) and FÁS to promote a learning culture in public and private sector organisations in Ireland. The project aims to find insights into how organisations learn, and how they use learning to improve their processes and manage their changing environment. This paper includes material prepared by the author on behalf of NCPP as a background to the project, and it is hoped that this will provide a broader context for the work currently being undertaken on learning in UCC.

This paper reviews selected literature on learning in organisations and proposes a set of guiding principles for the current project, to include

- A rationale for learning in organisations
- The characteristics of an organisation that is learning
- Elements of a learning strategy for organisations.

It is not intended to present a comprehensive review of the literature on learning in organisations. Rather, the paper aims to identify major themes and trends, to provide a backdrop for the project, and to establish sound principles from which the work in the succeeding phases can proceed. In addition the paper outlines the action research that is to be undertaken in the next phase of the project, in which UCC will participate.

### 2. Review of selected literature on learning in organisations

An extensive and varied literature has emerged on the topic of learning in organisations over the past decade or so. There are numerous seminal texts and journal articles, together with many project reports and web-based resources. In spite of the proliferation of material, however, there is neither a consensus in definition nor sound conclusions about "what works" based on empirical evidence. The multiple perspectives on learning in organisations that emerge from the literature suggest that there is no single, or simple, way to define "the learning organisation". Furthermore, it may not be useful even to apply the label of "learning organisation", rather to focus instead on how organisations learn in ways that support the development of the individual, the team and the organisation itself.

This section explores a selected range of key literature on learning in organisations, to address three key questions:

◆ Why is it imperative for organisations in today's economic and social environment to learn?
◆ What are the distinguishing characteristics of an organisation that is learning?
◆ What are the key enabling factors if learning is to take place in an organisation?

In the context of the university's participation in the project, a further question is implicitly addressed: How can the university practise what it preaches and become a learning organisation?

## 2.1 Why is learning an imperative in today's organisations?

The literature abounds with arguments in favour of learning in organisations. Some of these are repeated so often that they have become clichés, and they are in danger of being regarded as empty catch phrases describing yet another passing management fad. However, it is helpful to take a critical look at some of the justifications that are commonly advanced, to see if they have any resonance with the current situation in Irish organisations and to consider what, if any, benefits are associated with learning in organisations. The arguments in favour of learning in the literature usually relate to three main imperatives:

◆ The business imperative
◆ The economic and social imperative
◆ The individual imperative.

*The business imperative: Learning to meet the competitive challenge*
In his introduction to a "Declaration on learning" formulated in 1998 by eight of the UK's leading authorities on learning in organisations, Peter Honey notes with some satisfaction that "learning has at last come of age". He suggests that there are many interrelated reasons for the surge of interest in learning, notably

◆ Changes are bigger and are happening faster. Learning is the way to keep ahead
◆ Jobs for life have gone. Learning is the way to develop and maintain employability.
◆ Global competition is increasing. Learning is the way to sustain a competitive edge.
◆ Increasing emphasis is being placed on the need for individuals to take responsibility for their life and work. Learning is the path to increased responsibilities.
◆ Learning to learn is being increasingly acknowledged as the ultimate life skill.

(Honey, 1998).

One of the leading proponents of "the learning organisation", Peter Senge (1990), outlines the features of the changing world of work that constitute an imperative for learning, including:

◆ the explosion in knowledge and innovation in recent decades
◆ the need for organisations to compete globally by learning how to reorganise, cut costs, innovate and create new competitive opportunities
◆ the changing educational level and aspirations of the workforce, driven by national policies both in industrialised and developing countries
◆ the growing complexity especially of technology-driven development projects.

*Learning as a driver of development: the economic and social imperative*
While learning is seen as having the potential to contribute to the development of the *financial* economy, this is closely linked by many commentators to the development of the *real* economy.

Many countries are beginning to focus on learning as a key to high aspirations, high standards, high skills, high salaries and high satisfaction among the workforce. The concepts of lifelong learning and a learning society have been promoted in national and EU policy in recent years. It is useful to see the concept of a learning organisation as a microcosm of a learning society. Learning organisations can complement formal education and training systems, and even compensate for their inadequacies by giving people the confidence and ability to learn and adapt on a lifelong basis. In meeting their own needs, learning organisations can be self-contained islands of learning, but the process is both easier and more beneficial if located within a social context that values lifelong learning and change and creates landscapes of learning (Stahl, Nyhan and D'Aloja, 1993).

The concept of the learning organisation is seen as fitting within the emerging European approach to human resource management (HRM). Nyhan (2002) contrasts two theories of human resources development (HRD) derived from two different ways of conceiving human resource management. The first of these, which is seen to have much in common with classical European industrial and working life values, is the humanistic-developmental tradition. The second is characterised by an instrumental-utilitarian way of looking at human resources. At the present time HRD policymakers in Europe are caught up in the debate about these two approaches. Europe can be seen searching for human resource management and development policies that promote lifelong learning for everybody at work with a view to building a strong and sustainable economy. A recent OECD report (OECD 1999) notes that there has been a swing from management philosophies based on tight management control (instrumental-utilitarian) to those based on employee commitment (humanistic-developmental).

Introducing a recent EU publication entitled *Facing up to the learning organisation challenge*, Nyhan states that European goals related to 'lifelong learning' and the creation of a 'knowledge-based society' can only be attained if the organisations in which people work are also organisations in which they learn. This means that work organisations must become, at the same time, learning organisations. (CEDEFOP, 2003). The publication attempts to elucidate the issues, dilemmas and challenges arising from a number of EU research projects with a view to assisting policy makers to devise policies that will promote learning at work. One of the main messages emerging is that organisational learning goals need to be reconciled with individuals' learning needs. This calls for enlightened leadership from decision-makers and management and requires the skilled interventions of committed organisational learning professionals.

*Learning as an individual imperative*
As noted above, learning in organisations is seen to be more effective when the learning goals of the organisation are linked to those of the individuals within it. When asked in 1995 to say why they would want to create a learning organisation, subscribers to a website dedicated to the theme stated a very wide range of reasons, including very practical and instrumental imperatives, as well as more lofty conceptual and philosophical aspirations. The summary of responses shown in Figure 1, below, suggests that people had very high, and perhaps even naïve, expectations, regarding the learning organisation as "the business equivalent of the fountain of youth", as Boyett and Boyett (1998) remark.

**Figure 1**
**Reasons for creating a learning organisation**

◆ for superior performance and competitive advantage
◆ to improve customer relations
◆ to avoid decline
◆ to improve quality
◆ to understand risks and diversity more deeply
◆ to promote innovation
◆ for personal and spiritual well-being
◆ to manage change
◆ for true understanding
◆ to create an energised and committed workforce
◆ to expand our boundaries
◆ to engage in community
◆ for independence and liberty
◆ because the times demand it
◆ to make it more fun to work in organisations
◆ to give people hope that things can be better
◆ to provide a playground for creative ideas
◆ to provide people with a safe place to take risks with new ideas and behaviours
◆ to stretch beyond perceived limits
◆ to improve our environment
◆ to help people become active actors not passive recipients
◆ to embrace and implement the vision of sustainable communities and organisations
◆ to be free
◆ to contribute to human revolution
◆ to stretch the fabric of our soul
◆ because it is only natural, that is, in keeping with human nature
◆ to increase joy in work
◆ to raise the overall quality of life
◆ to provide people with more satisfying lives so they are happier, do more interesting things with their lives, and are more fun to have lunch with
◆ to channel support and enhance the basic human passion to learn
◆ to provide a rational explanation of the necessity of caring about each other
◆ to provide an invitation and rationale for building communities
◆ why not?

*Source: these are adapted from "Why a learning organisation?" a compilation of responses from list subscribers to learning-org.std.com (February 1995).*

*Summary: The learning imperative*
It is clear from the above that there are strong driving forces in the current economic, social and business environment that require adaptiveness, flexibility, increased productivity and competitiveness on the part of organisations. Learning is seen as an effective way to prepare for the challenging times that lie ahead. However, in embarking on a project that aims to promote learning in organisations, it is important to stay grounded in reality, to pose further searching

questions, to interrogate the research evidence, and to get beyond the rhetoric of fads and fashions. At this point the key questions that organisations such as UCC might ask about the reasons for learning are

◆ Why should we try to foster learning?
◆ What is in it for us if we do?
◆ What are the consequences if we do not?
◆ What would enable us to learn better?
◆ What might prevent us from learning?
◆ Is there any learning happening in the organisation at present?
◆ Is it systematic and intentional, or mostly ad hoc and accidental?
◆ How is learning different from training or HRD?
◆ Are the things that are being learned in some parts of the organisation being transferred to other parts to meet changing needs?

The proposed action research project offers an opportunity to address these questions, by looking in detail at the practice in a range of Irish organisations, and by observing what happens when they adopt a systematic approach to learning. When the university has explored these questions through the project, it will be possible to define a sound rationale for learning, which will help to underpin the development of a strategic approach for the future.

### 2.2 What are the distinguishing characteristics of an organisation that is learning?

What do we mean by a "learning organisation"? What does a learning organisation look like? How is this different from other organisational development initiatives, for example partnership-driven approaches to management, or teamworking? How is it different from training, or change management? Many writers have tried to describe the concept and characteristics of a learning organisation. Some of the classical literature in the area suggests that a learning organisation

◆ Is continually expanding its capacity to create its future through applying a range of learning disciplines (Senge, 1990)
◆ Facilitates the learning of all its members and continuously transforms itself (Pedler et al., 1992)
◆ Forms the strategy, structure and culture of the enterprise itself into a learning system (Stahl et al., 1992)
◆ Encourages double-loop learning (Argyris, 1990)
◆ Makes many mistakes, but learns from them ... it sees learning not as a confession of ignorance, but as the only way to live. (Handy, 1992).

Some of these definitions have been very influential in shaping approaches to learning in organisations in the past decade or so, and therefore it is worthwhile looking more closely at the underlying concepts to determine whether or not they are relevant to the current project.

*Learning disciplines*
Senge (1990, 1994) suggests that there are five basic disciplines within the learning organisation approach:

1. *Systems thinking.* Senge's whole approach to organisations is a 'systems' approach that views the organisation as a living entity, with its own behaviour and learning patterns.
2. *Personal mastery.* Senge recognises the importance of developing skills and competences in individuals, and stresses the importance of personal growth in the learning organisation.
3. *Mental models.* This discipline requires managers to construct mental models for the driving forces behind the organisation's values and principles.
4. *Shared vision:* according to Senge, true creativity and innovation are based on group creativity and the shared vision of the group can only be built on the personal vision of its members.
5. *Team learning:* effective team learning involves alternating processes for dialogue and discussion. Dialogue is exploratory and widens possibilities, whereas discussion narrows down the options to find the best alternatives for the future decisions.

Black and Synan (1997) point out that many organisations have great difficulty in relating to the discipline of systems thinking and they suggest that what is needed is a foundation discipline upon which the other disciplines can stand and which can be understood and practised by all. Because conversation is an activity that people in all organisations use most of the time, they put forward the notion of interactive consultation as a possible sixth discipline. They believe that the word "consultation" is often used to describe the process of communicating information about decisions that have already been made by others. (*"We will consult the staff about this" often means, " We have decided what to do and we will now inform those involved"*). True consultation is the process that takes place in arriving at a decision and it proceeds from open-minded consideration of all the issues involved, through the creation of self-confidence across the whole organisation, to the reaching of consensus. Once the capacity for group action is enhanced, collaborative learning can begin to take place.

*Underlying factors influencing learning*
In an attempt to demystify the jargon-laden concepts that characterise the classical literature on the topic, Pearn, Roderick and Mulrooney (1995) make the case that while there is probably no such thing as the learning organisation, some organisations are better at learning than others. They do not write about learning organisation theory, but describe some processes and techniques that may be used to help organisations learn more effectively. They do not attempt to define a learning organisation, but argue that it is preferable to conceptualise it through describing a number of underlying factors. A six-factor model is presented – INVEST: *Inspired learners, Nurturing culture, Vision for the future, Enhanced learning, Supportive management, Transforming structures.* The model can be used to conduct an analysis or learning audit that can help an organisation build up a detailed picture of the factors, which contribute to a positive climate of learning.

The authors set out some general guiding principles for learning in organisations, which might be usefully explored in later phases of this project, for example:

◆ people learn in a variety of different ways
◆ making the learning process conscious or explicit helps learners exercise greater control over their learning
◆ individuals and groups can learn to become more effective learners
◆ both individuals and organisations can be blocked in their learning without even realising it
◆ a systematic audit or analysis of learning blockages and of the learning climate is usually helpful in gaining commitment, understanding the problems, and in planning action.

*Single and double loop learning*

Argyris and Schön (1996) point to the distinction between single and double loop learning. Single loop learning is instrumental learning that can affect action by feeding back the results of inquiry to organisational strategies and assumptions. The strategies and assumptions are then modified to keep performance within existing organisational values and norms. The difference in double loop learning is that the values and norms are also changed, resulting in new *theories in use* for the organisation. Another key element of Argyris and Schön's approach is that practitioners are themselves inquirers, rather than passive recipients of the expertise of researchers. In this, they build on Lewin's concept of action research and on his assertion that people are more likely to accept and act on research findings if they are involved in the design, data gathering and analysis. It is argued that the desirable shift to higher order double loop learning in an organisation is critically dependent on a similar shift at individual learning level, towards "learning how to learn". This is best enabled by an effective learning system in the organisation, which creates positive conditions for inquiry and interaction among individuals. Key aspects of such a system include channels of communication; information systems; spatial environment; procedures and routines, and systems of incentives.

*Learning as a cultural process*

There is a growing awareness among many practitioners that learning in organisations is best understood not as a cognitive process but as a cultural one. Cook and Yanow (1999) suggest that organisational learning can only be done by a group. This approach is based on the premise that all groups, over time and in the course of joint action or practice, create a set of shared meanings that are expressed in and through their artefacts (objects, language and acts). The feelings, values and beliefs of the group are transmitted to new and existing members through these artefacts. Thus, shared meanings are continually maintained or modified through learning. This means that much organisational learning is tacit, occurring through the day-to-day experience of the organisation.

The theme of creating a culture of learning in an organisation is one that has been explored by Edgar Schein, who is described as the chief architect of learning cultures (Boyett and Boyett, 1998). He concludes that many organisations cannot, and do not, learn because their cultures prevent them from doing so, and the transformation to a learning culture is highly problematic. An outline of Schein's criteria for a culture that enhances learning, and how this differs from one that inhibits learning, is shown in Figure 2 below.

**Figure 2: Cultures that enhance and inhibit learning**

| A culture that enhances learning | A culture that inhibits learning |
| --- | --- |
| Balances interests of all stakeholders | Distinguishes between "hard" and "soft" issues |
| Focuses on people | Focuses on systems |
| Makes people believe they can change their environment | Allows people to change only when they must |
| Makes time for learning | Is "lean and mean" |
| Takes a holistic approach to problems | Compartmentalises problem solving |
| Encourages open communication | Restricts flow of information |
| Believes in teamwork | Believes in individualised competition |
| Has approachable leaders | Has controlling leaders |
| *Adapted from Schein (1994).* | |

*Levels of learning in an organisation*

There is often the difficulty in distinguishing between learning and training, and some commentators have tried to elaborate the differences, often by showing that they are part of the same continuum of practice. Nyhan (1999) describes a European research project which set out to show how some large companies are adopting innovative competence development or "learning organisation" strategies. Eleven companies from seven European countries were analysed in relation to a common framework, depicting different levels of progression in learning (see Figure 3 below).

**Figure 3: Levels of progression in learning**

> **Level one (bottom level)** *problem solving perspective*
> This represents a view of competence development as a means of introducing new problem-solving processes in a company to meet its current needs. This could involve the introduction of new tools, equipment or operating systems. It does not involve radical evaluation or overhaul of management and organisational strategies. The impact of competence development is mainly confined to the worker / shop-floor level.
>
> **Level two(middle level)** *organisational model perspective*
> This relates to the adoption of radical organisational models or management strategies such as TQM or world-class manufacturing systems, which demand competence development on an organisational level, involving all managers and employees. The central feature of the change taking place is the adoption of an external organisational model.
>
> **Level three (top-level)** *visionary perspective*
> This entails a radical shift in the organisation's values concerning the roles and responsibilities of all employees in the achievement of its goals. The implementation of the new vision is based on the competence of the workforce. The chief executive plays the key role in articulating and gaining acceptance of the new vision.

The key features emerging in the visionary companies which characterise them as learning organisations are identified as follows

- dynamic visionary leadership and support by senior management
- willingness to believe in, and invest in, the competence of the workforce
- existence of an overall framework for the change process
- creation of a shared vision based on the implementation of an integrated organisational change programme
- commitment to a practical programme of development.

A central competence required by workers is the capacity to understand and handle social, organisational and technological complexity in an integrated manner. The companies in the study adopted a number of learning processes to develop this competence, including preliminary training; pilot development programmes; informal work based learning approaches; planned on the job learning; learning circles; co-operative learning strategies and coaching. A common feature of the learning approach of the visionary companies was the inclusion of situation-based learning. This involved the planned provision of opportunities for collective and individual reflection on

ways in which the company could improve its performance, benefiting both the organisation and the individual employees. This approach is very much in keeping with the view of learning as a cultural process and as a catalyst for change that emerges from the literature.

*Summary: characteristics of organisations that learn*
So, what can we discern from the literature about the distinguishing characteristics of organisations that learn? It can be seen firstly that learning is complex and multifaceted. It embodies some features of other organisational development initiatives and disciplines, but goes beyond these by integrating them in a holistic way. An organisation that is learning will adopt a range of approaches to create a landscape of learning, infusing its whole culture, rather than having isolated islands where learning is taking place, unconnected to the organisation's strategy or development agenda. It is not sufficient to take a narrowly instrumental, training focused approach, because this results in limited competence development and may not effect wider reaching cultural change or continuous improvement.

**2.3 What are the enabling factors if learning is to take place in an organisation?**
In the preceding section, some of the main distinguishing characteristics of a learning organisation were outlined. The next question that needs to be addressed is: What kinds of things are necessary if learning is to work in an organisation? Kelleher (2001) has considered the conditions and mechanisms that are favourable for the integration of learning and work. He concludes that the key factors fall into six main groups:

◆ a good learning environment with adequate learning resources, including knowledge and time
◆ external and internal contextual conditions, leadership and organizational culture.
◆ the learning potential of the task: the importance of both "objective" task characteristics and "subjective" developmental competence
◆ opportunities for feedback, evaluation and reflection on the outcomes of work actions
◆ formalisation (standardisation) of the work processes
◆ employee participation in problem handling and development of work processes.

For the purposes of this brief review, particular attention is paid to the features of the learning environment and the conditions in companies that enhance and inhibit learning.

*Learning environment*
Kelleher concludes that the learning environment of an organisation is a result of a complex interplay between external forces and the internal "logics" represented by various actors within the organisation. It is necessary that the organisation is characterised by a strong "learning culture". A culture is formed by such things as the opinions of management and unions on the value of learning, but also by the employees' subjective need for competence development and their motivation for participating in learning. Some of the observations about the conditions for effective individual and team learning that have emerged from the European research collated by Kelleher are summarised in figures 4 and 5 below.

**Figure 4: Ideal Learning Environment for Individual Learning**

◆ Unconscious learning is associated with the most complex challenges in learning and is maximised through direct experience rather than relying on representational methods such

as books, videos, etc.
- ◆ Learning is based on activity in the contexts in which the learning is to be applied.
- ◆ When representational methods are used, learners are helped to consider the transfer of learning to the context where it is to be applied.
- ◆ Learners are helped to view learning as intrinsically rewarding and under their control.
- ◆ Learners are helped to become aware of their own thinking and learning strategies.
- ◆ Where possible, learning is experienced in collaboration with others.
- ◆ Learners become aware of their self-models as learners.
- ◆ Learners consider the transfer of knowledge of learning processes to different contexts.
- ◆ Facilitators themselves engage in learning to learn in order to model this for learners.
- ◆ Learning experiences challenge the learner.

**Figure 5: Criteria for ideal team learning environment**

- ◆ Team participants recognise problems where they exist.
- ◆ The team shares the extent of knowledge existing within its membership.
- ◆ The team emphasises continuous improvement and learning rather than inter-team harmony and cohesiveness.
- ◆ The team solicits and values minority views.
- ◆ The team explores the discrepancies in perceptions about given problems.
- ◆ Open and free communication exists between team members to enable them to decide on any information to be acquired.
- ◆ Team members are provided with access to information sources outside of those available within the team.
- ◆ Sufficient time is allowed to retrieve information before considering solutions to problems.
- ◆ The team takes account of all available evidence before finding solutions to problems.
- ◆ Team members learn from their experiences of learning within the team.
- ◆ The team seeks to overcome the blockages to learning inherent in group behaviours.
- ◆ Team members consider the transfer of new knowledge to different contexts.
- ◆ The team understands the process of how it acquires new knowledge and considers how those processes could be used in a different context.

*Factors that enhance and inhibit learning*
In a report of a European research project on the role of human resources development (HRD) in creating a learning organisation, ter Horst and Tjepkema (1998) identify some factors that inhibit learning, and some positive coping strategies to support it. The most important inhibiting factor appears to be a lack of motivation on the part of managers and employees to take on new learning tasks or to engage actively in learning processes. This lack of motivation is probably closely linked to two other inhibiting factors, namely a lack of clarity on HRD's role and an insufficiently developed learning culture. Next to these deeply rooted problems, pragmatic factors such as a lack of time for learning, and a lack of time and money to develop new HRD initiatives also play a role for almost all HRD functions.

The lessons learned from the project are summarised as follows:

- ◆ It seems crucial that employees are motivated for learning. An important aspect with regard to motivation is an appreciation of more informal ways of learning and development, and a

sense of responsibility for their own learning.

◆ Managers are becoming more responsible for employee development. For instance, it is expected of them to perform assessments and needs analyses, work on development plans for their staff, motivate employees for learning and manage the workplace as a place fit for learning.

◆ As HRD professionals are changing their practices, their own role changes considerably. Instead of trainers, they now become consultants, who also have to manage the link between their activities and company strategy. This requires a totally different set of skills and attitudes, since it is more a role 'behind the scenes' instead of 'on stage'.

◆ HRD departments often have a clear picture about their strategy, but not a clear overview of how to evaluate their role. It was found that HRD professionals need evaluation tools and indicators.

Pearn, Roderick and Mulrooney (1995) recommend the use of a learning audit to assess the state of learning in an organisation, and the model they propose focuses on identifying inhibitors and enhancers of learning. Examples of enhancers and inhibitors, both organisational and individual, are shown in Fig. 6 below.

**Figure 6  Individual and organisational enhancers and inhibitors**

| ENHANCERS | INHIBITORS |
|---|---|
| **Individual** | |
| ◆ recognition of personal learning achievements | ◆ learned helplessness |
| ◆ opportunities to learn from mistakes | ◆ managers believe they know all the answers |
| ◆ highly developed personal learning skills | ◆ managers hooked on status and traditional 'us' and 'them' role |
| ◆ empowerment processes | ◆ unwillingness to take responsibility |
| ◆ accurate feedback on performance | ◆ entrenched view that learning stops in the classroom |
| ◆ coaching | ◆ managers as facilitators |
| ◆ mentoring | ◆ couldn't care less about standards |
| ◆ self-development | ◆ imbued with 'not invented here' syndrome |
| ◆ self-directed learning | ◆ fear |
| ◆ a sense of purpose (doing something worthwhile) | ◆ lack of confidence to learn |
| **Organisational** | |
| ◆ cross-functional work teams | ◆ too many management levels |
| ◆ everything permitted not actually banned | ◆ design and manufacturing separate (functional separatism) |
| ◆ redesigning jobs to include dialogue and problem-solving | ◆ action learning |
| ◆ quality reflection time | ◆ workers confined to narrowly defined tasks |
| ◆ inter-company consortia | ◆ equipment specialised and inflexible |
| ◆ open learning | ◆ individuals treated as brain-dead |
| ◆ widespread use of systems thinking | ◆ too hierarchical |
| ◆ scenario planning | ◆ centralised decision-making |
| ◆ systematic examination of mental models | ◆ bureaucratic culture |
| ◆ learning laboratories | ◆ preoccupation with getting it done |
| | ◆ only do what is permitted |
| | ◆ belief that workforce is lazy and stupid |

*Summary: enabling learning in organisations*

It can be seen from the above overview that there are number of ways in which organisations can support learning through their culture and structures. The literature, however, is quite inconclusive and it is difficult to pinpoint the exact combination of critical success factors that makes learning work. Some of the messages emerging from European research projects can act as useful pointers, however. Firstly, organisational learning goals need to be aligned with individuals' learning needs. Secondly, developmental or challenging work is a prerequisite for implementing a learning organisation. Thus, people are learning from their work because they are learning as they work. The third message is that the provision of support and guidance is essential to ensure that developmental work leads to developmental learning. Good management and leadership are necessary to ensure that people individually and collectively have space and time to reflect on their work in a learning mode, through receiving supportive feedback, teaching, training, coaching and guidance. The fourth key message is that there is a need for boundary-crossing and interdisciplinary partnerships between the education and training and human resource development communities. Professional education and training actors have to rethink their positions to respond to the challenge of learning in "untidy" organisational environments.

The next phase of the current project will attempt to identify the factors that are the key to success, to determine what helps organisations to learn, what prevents them, and what interventions work to promote learning.

## 3. Conclusion

This review set out to answer a number of questions about the nature of learning in organisations: the reasons for it, the benefits it produces, the factors that foster it and the kinds of practices that have been seen to work. At this point it is possible to begin to draw some conclusions about the nature of learning in organisations as a basis for the further work of this project. It appears from the literature are that organisations learn best when

◆ There is a strong imperative, usually a perceived need that motivates organisations to develop new competences and practices
◆ The conditions for learning are right: there is a supportive environment, a positive culture and committed leadership
◆ There is an intendedness about the learning process: it is systematic, planned and sufficient resources are dedicated to support it
◆ The benefits both the to the organisation and to individuals are clear and are translated into improvements in some aspect of the organisation's process.

Having examined some of the literature in the area, there are still key questions to be answered, and the action research project in which UCC is participating is designed to address these questions in a targeted way. While the literature includes many statements about the benefits of learning in organisations, there is very little hard empirical evidence that shows how companies can gain from becoming more adept at learning. An important focus of the next phase of the project will be to try to bridge the gap between theory and practice. It will offer an opportunity to explore the benefits of different approaches to learning in organisations, to discover which interventions work best in practice, and to determine the real impact for organisations in terms of increased capacity to meet the challenges of their changing environment.

**Some guiding principles for the action research project**

Arising from the review of selected literature on learning in organisations, a number of guiding principles might be suggested for the current project. If it is accepted as axiomatic that the nature of work will continue to change rapidly over the coming years, and that organisations and workers will also have to change, then continuous learning will be a powerful force in supporting change. Learning has the power to release massive underdeveloped potential in organisations and to transform them. There is an excitement and energy about learning which incites missionary zeal in many of its proponents: Pedler, Burgoyne and Boydell (1992), for example, speak of the magic of transformation that can be realised from within an organisation. This charismatic view needs to be balanced, however, with a sound approach to the provision of meaningful learning experiences, and it is possible to discern from the literature the elements of a conceptual framework for implementing a learning approach in organisations. The following principles address three major aspects of learning in organisations:

◆ *Why* do organisations need to learn?
◆ *What* is it that defines learning in organisations?
◆ *How* can organisations learn?

The principles comprise both underlying concepts and practical guidelines for action. In the course of the action research project, it will be possible to implement these principles and to test their relevance, applicability and durability in a range of organisational contexts, including the university.

*Why do organisations need to learn?*
The business and economic case for learning in organisations is well made in the literature. Put simply, if organisations want to be able to meet the challenges of increased competition and decreasing competitiveness, they have no choice but to learn new ways of doing business, increasing productivity, and providing higher quality outputs to meet increasing customer expectations. In addition to these business imperatives, there are broader socio-economic factors driving the need for continuing learning in the workplace: the changing profile of the labour market, the growing awareness of the benefits of lifelong learning, and a policy emphasis on increasing both the skill levels of the workforce and the level of social inclusion and cohesion.

There are many possible reasons for wanting to be an organisation that learns. Each organisation develops its own rationale, which must fit a need that they have identified. They need also to be clear on what benefits learning is likely to produce, and what impact this will have on their desired outcomes or results. In this project, the focus is on the benefits that learning produces at three levels:

*For organisations:*
◆ Learning increases everyone's capacity to contribute to the success of organisations.
◆ Learning enables an organisation to be more effective in meeting its business goals.
◆ Learning emancipates the organisation through clarification of purpose, vision, values and behaviour.
◆ A systematic focus on learning produces a wider range of solutions to organisational issues.
◆ Learning helps to achieve a better balance between long-term organisational effectiveness and short-term organisational efficiency.

*For individuals:*
- ◆ Learning is the key to developing a person's potential.
- ◆ Learning to learn is the key to effective learning.
- ◆ Learning enables the individual to meet the demands of change.
- ◆ The capacity to learn is an asset that never becomes obsolete.
- ◆ Embracing learning in the workplace helps the individual to acknowledge that learning is more than formal education and training.

*For society:*
- ◆ Society survives and thrives through learning.
- ◆ A focus on capturing, sharing and recognising learning contributes to a more cohesive society.
- ◆ Individual and collective learning reinforces the informed, conscious and discriminating choices that underpin democracy.
- ◆ Learning helps to enhance the capacity of individuals to create a more fulfilled and inclusive society.

*What is it that defines learning in organisations?*

Although no single definition of learning in organisations emerges from the literature, it is nevertheless possible to outline some of the concepts that might underpin the approach to the project. Learning is about how an organisation puts itself together, its structures, systems and strategies. Learning can also be about managing all of these aspects really well, creating an internal environment that makes time, space and resources available to enable people meet their needs for development. Organisations that are learning are characterised mostly by the *intendedness* of their learning actions: they take a systematic approach to the learning dimension of all aspects of the business, and they think constructively about doing the basics, such as recruitment, induction, continuing training and development, really well. They use learning to make the organisation more effective, and to build the capacity of everyone in the organisation to handle a range of issues and avoid crises.

Some of the underpinning concepts about the nature of learning in organisations that will be tested in this project are:

- ◆ Knowledge, and therefore learning, is best produced in service of, and in the midst of, action.
- ◆ Learning is complex and various, and it includes knowledge, skills, insights, beliefs, values, attitudes and habits.
- ◆ Learning is individual and can also be collectively generated in groups and organisations.
- ◆ Learning is both a process and an outcome.
- ◆ Learning may be incremental or it can be transformational.
- ◆ Learning can be both the cause and the consequence of change.
- ◆ Learning can help people and organisations to see their current reality more clearly.
- ◆ Learning for the future can give organisations options for sustainable development, clarity of vision and the values and the behaviour needed to achieve their purposes.

*How can organisations learn?*

From the literature, it is clear that there is no single magic recipe for making a "learning organisation". The right solution for an organisation at any particular time depends on a range of variables, including the current context and environment, both internal and external; the goals it

is hoped to achieve; the specific outcomes that are desired; the previous learning experiences and the current learning needs of the people concerned. However, a number of core principles and guidelines for action can be incorporated into the design of a learning programme or the planning of a specific intervention. For the action research project, the following are suggested:

◆ There is no one right way to learn, and good learning experiences take account of diverse learning modes and learning styles.
◆ Making learning explicit and sharing it with others adds value to the learning.
◆ The management and inclusion of diversity is crucial to learning in organisations.
◆ The effectiveness of how people learn can be improved. People, either individually or collectively in groups, teams and organisations, can learn to:
◆ analyse how they learn;
◆ adopt disciplines and routines to improve the way they learn;
◆ experiment and develop new ways of learning;
◆ learn from people around them;
◆ transfer learning to new situations.
◆ Learning in groups can be very effective in promoting a learning culture within an organisation. The shared vision of a group leads to creativity and innovation.
◆ An effective learning system in an organisation needs effective channels of communication; information systems; a conducive environment; appropriate procedures and routines; systems of incentives; flexible and co-operative patterns of interaction.
◆ Action learning can be a first step towards linking individual learning with systematic learning and change in an organisation.
◆ A good learning programme for an organisation is
◆ holistic, integrating cognitive, cultural and behavioural dimensions
◆ directed by the learners
◆ focussed on process as well as product
◆ designed to encompass a diversity of learners and learning contexts.

**Outline of action research project**
The objective of the project is to work with a selected group of organisations in a focussed way, to deepen the understanding of *how learning works* in organisations. As the title suggests, there will be both *action* and *research*: participating organisations will be helped to undertake collaborative and reflective enquiry into their own learning practices, and to take action to achieve their own organisational learning goals. They will also assess the impact of actions and interventions, and document their experiences as part of the case study research that will be a major outcome of the project. The work of the project will inform the deliberations of the *Forum on the Workplace of the Future*, which is an important national policy development. The project will contribute to the activities that are planned to take place under the auspices of the Forum during the Irish presidency of the EU in the first half of 2004.

Fifteen organisations will participate in the action research phase of the project. The group includes a range of organisations from both the public and the private sectors, with a particular focus on those that have already demonstrated a commitment to learning. Organisations that have previously participated in a formal training or learning network will be included. The past and current experiences of the organisations will contribute significantly to both the action and the research dimensions of the project.

Participating organisations will

◆ Have an opportunity to learn from each other, to share their experiences as learning organisations and to promote the good learning practices they have developed
◆ Be helped to identify the current state of learning in their organisations, to set development goals, and to advance towards these goals with the support of the project
◆ Have access to the resources of the project, including a peer learning network, formal and informal learning opportunities, support for their own organisation-led initiatives
◆ Play an important role in disseminating and mainstreaming effective and innovative learning strategies that can help to shape the Irish workplace.

*Intended outcomes of the project*
The project will make an important contribution to the development of national policy and practice on learning in organisations. It will result in

◆ A new focus on learning
◆ A new set of purposes for learning
◆ A new approach to old issues
◆ A new set of relationships
◆ A new set of questioning practices
◆ A new set of instruments for analysis, action and assessment of impact
◆ A new strategic framework for promoting a learning culture in organisations across the public and private sectors in Ireland.

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# CHAPTER 2

## THE REFLECTIVE COORDINATOR

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At the turn of the millennium, staff in UCC could have been forgiven for thinking that discipline-based research was all that mattered in UCC, if you wanted to 'get on'. Older and wiser staff would be heard to say 'concentrate on your research if you want promotion'. But the winds of change are blowing through the institution, and the perceived dichotomy between teaching and research has been challenged. The new talk is of the scholarship of teaching. We always knew that good research could feed into teaching, benefiting our students, but now we are told that good teaching can improve our research. What's more, we are told that the experiences in the classroom can be part of our research! This is indeed new thinking. But do we all believe it?

What has been going on? Work that had begun in the late 1990s by Prof Áine Hyland, began to bear visible fruit in May of 2001, when the first 'Teaching Portfolio' seminars were held. With the help of HEA funding, Nona Lyons, a visiting academic, and author of *With Portfolio in Hand*[1], was enlisted to facilitate these seminars. Such was the interest, that the portfolio seminars were continued through the academic year 2001-2002, with staff sharing their experiences, good and bad, of teaching in higher education. The introduction of the President's Awards for Excellence in Teaching, and the Awards for Research into Innovative Forms of Teaching had drawn attention to these seminars, and sent out the first clear signal that teaching was valued in UCC. One of the many outcomes of these activities was a publication by Lyons et al (2002)[2] presenting a flavour of what had been uncovered from the lone profession that is teaching.

By Sept 2002 there was a ground swell of energy and enthusiasm, with staff interested in sharing their considerable experience of teaching and learning. A call for interest from staff who might be willing to contribute to the support of teaching and learning, produced a core of experienced staff willing to convene and contribute to a variety of workshops and seminars. I was asked to coordinate the effort and build on what had gone before, by channelling and focusing this enthusiasm into a programme of activities to support teaching and learning in UCC. There is no doubt I thought the task daunting – I was merely a geologist! Could I do it?

I began by making out a list of possible activities, perhaps one a week, I thought. I was surprised to find my planning was made almost redundant by the avalanche of ideas coming from UCC staff. The expertise was organised into several seminar series, with content varying widely from mentoring to assessment strategies, from student retention to use of computing technology in teaching and learning. The challenge was to present these, and other topics, to UCC staff as a coordinated programme under the heading 'Support for Teaching and Learning'. We formed the 'Team', consisting of convenors, and staff who support teaching and learning in a variety of ways, such as the equipping and general upkeep of teaching areas.

Sixty lunchtime seminars were held from October 2002 to May 2003, in the UCC Council Room.

Almost 350 staff participated in one or more of these seminars. They were drawn from over 40 departments in the University. Some staff chose to follow one seminar series throughout the year, while others dipped into a variety of topics. In addition small group seminars were held in the Education Resource room.

There were several observations that struck me during the year. The first is that staff were not asking the 'how do I do?' of teaching, but the 'how do I know?'. How do we know students are understanding what we think they are understanding? Are there different types of understanding? And if so, what are they? Do our teaching methods and assessment strategies have the desired effect and fulfil the learning outcomes that we have set for the course? Do students have their own learning preferences, and are we catering only for a proportion of the class with our own teaching and assessment strategies. Results from studies show that not all students are being reached by the standard lecture, and certainly many are not being inspired. The diversity of students studying in UCC is growing, and as Skilbeck has stated, 'our challenge is to adapt'[3]. It became very clear that theories of 'teaching for understanding' and 'multiple intelligences' had much to offer us, as teachers, for our own understanding of what we are doing in the classroom. This led participants to engage with their own experiences of being a learner. We no longer have to 'use the 50 minutes to transmit everything we know'. We have been set free to find new ways of promoting the students' conceptual development, and we can begin to view learning from the perspective of the learner, rather than the teacher.

Another observation is that the seminars relating to the use of Blackboard, online-learning, and the general use of ICT in teaching and learning were very well attended. Developments are so rapid that on-going discussion amongst staff, of the best uses of new computer based technologies in teaching, is very necessary. The message was loud and clear that sharing good practice can prevent us from using these technologies in inappropriate ways. The aim is to support teaching and learning, not to take it over. Technology can open up new opportunities, and allow us to do things that were not possible before. Collaboration with the Learning Technologies Unit and the Computer Centre were very beneficial, indeed crucial, in these seminars. The Learning Technologies Unit and the Computer Centre have been able to run complementary courses on technical aspects of the methodologies discussed.

The practice of 'reflection' has been analysed with a fine tooth-comb during the seminars, and staff have realised that they have been reflecting on their practice all along, without recognising it as such. Studies have shown that by formalising reflective practice, staff can better turn experience into learning. This is one of the desired outcomes of the support for teaching and learning programme.

A certain amount of jargon was introduced during the reflection on teaching. At first most staff found this a little off-putting, but like any professional activity, a language is needed for communication. For example, are our teaching sessions 'student-centred' or 'teacher-centred'? Do our teaching methods encourage 'deep learning' or 'shallow learning'? The language of professionalism has permeated the institution throughout the year. I was very surprised at the high level of professional debate on teaching and learning that ensued in the seminars. It was also interesting to note that the concerns expressed by new teachers were somewhat different to those expressed by experienced teachers.

Another welcome observation is that we have generated a body of staff who are 'feeling guilty'. This is a great sign! Staff who were unable to participate in the seminars for whatever reason are determined to get involved during the coming year. Other staff, who began by thinking they had nothing to learn about teaching are now interested to find out 'what's going on?'.

In May 2003, a successful conference, with 120 delegates, '*Advancing the Scholarship of Teaching*' was held in UCC. Eighteen staff, from several UCC faculties, presented the results of research into their teaching practice, illustrating that the scholarship of teaching is alive and well in the institution. Prof. Mary Huber from the Carnegie Foundation for the Advancement of Teaching in the U.S., giving the guest lecture at the conference, introduced the concept of the inter-disciplinary 'Trading Zone' where staff from across disciplines could share and discuss best practice. It was clear that the lunchtime seminars, in the Council Room, had been UCC's Trading Zone. Another speaker at the conference, Dr. Don Thornhill, Chairperson of the HEA, commended the work that was being done in this and other H.E. institutions in Ireland to support teaching and learning, and to provide professional staff development for H.E. teachers.

The activities of the past two years have been stimulating, and above all have demonstrated how staff are willing to support their colleagues. Staff have been given a space to discuss and debate topics in their teaching which they have never voiced before. The non-competitive, non-threatening and supportive atmosphere of the seminars has been central to their success. Even in this short time staff are reporting 'my style of teaching has changed' and, 'reflecting on my teaching was a voyage of discovery'.

The challenge for the future is to maintain this atmosphere. Staff must be able to be open and honest about their teaching, in order to develop as a teacher. Already a new cohort of staff are coming forward who are openly admitting that their goal is to help their promotional opportunities. That's fine. A by-product will hopefully be a new awareness of their teaching, which will influence the learning experience of their students. The additional challenge is to wean these staff into a realisation that developing as a teacher is the goal, and promotion is the welcome by-product. A measure of the success of the initiatives is that some Heads of Department have requested specific support for staff development activities in their own departments. The Quality Promotions process has certainly helped to generate an interest in teaching development.

Students deserve good teaching. I believe they want to be inspired to learn. It is up to us to play our part in ensuring they have an effective and relevant learning experience. Teaching in H.E. is a professional activity. How many professional activities require no prior training, or on-the-job staff development?

And for ourselves – how can we develop as teachers? We may feel we are competent teachers, but how do we know? How do we become excellent teachers? Tait (2000) wrote, about teaching in H.E., "excellence is not a state, it is a process" and "excellent teachers engage in the process of development"[4]. It seems to me that all staff who engaged in the seminars over the past year were demonstrating excellence. Matiru et al, (1995) restated the widely held belief that 'excellence in teaching must be nurtured'[5]. Working on this premise, UCC is committed to providing a variety of development opportunities for staff in the coming years. There is still some way to go before all staff will believe that things have changed. I believe we must build on the foundation that has been laid down, and continue to share our experiences of teaching practice, so that we might continue to develop.

In my own portfolio, submitted in January 2002, I stated "I would like some stimulus to develop further as a teacher'. I was afraid my teaching was going stale. I also confided that 'I needed to be intellectually and personally challenged in my teaching'. I had no inkling of what was to come.

There is an excitement about teaching in UCC. The ripples that were started in 2001 have become a mini tidal wave, washing over the institution. Staff are leading the changes themselves, and everyone has something to offer and something to gain.

It is clear that there is no going back.

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1   Nona Lyons (Editor) *With Portfolio in Hand: Validating the New Teacher Professionalism* New York: Teachers College Press, 1998.
2   Nona Lyons, Áine Hyland and Norma Ryan (Editors) *Advancing the Scholarship of Teaching and Learning Through a Reflective Portfolio Process: The UCC Experience* University College Cork, 2002
3   Malcolm Skilbeck *The University Challenged: A Review of International Trends and Issues with Particular Reference to Ireland* Dublin: Higher Education Authority, 2001.
4   J. Tait. *Report on the project "From Competence to Excellence"* Open University V.Q. Centre, 2001.
5   B. Matiru, A. Mwangi,A., R. Schlette (Eds.) *Teach Your Best: A Handbook for University Lecturers.* German Foundation for International Development 1995

# CHAPTER 3

## THE CENTRALITY OF REFLECTIVE ENGAGEMENT IN LEARNING AND PROFESSIONAL DEVELOPMENT: THE UCC EXPERIENCE

*Nona Lyons*

In the spring of 2001, University College Cork (UCC) launched a challenge to its staff that unexpectedly created a new conversation about teaching and student learning within the university and, in turn, ushered in a new institutional culture. The conversation took place across faculties and disciplines. In the first year it resulted in 40 staff presentations about teaching to an audience of some 250 attendees at a weekly seminar. Twenty three staff members submitted a portfolio in which they documented their teaching and learning, for the President's Awards for Excellence in Teaching. The conversations and presentations are still carried on, as is portfolio development. On campus the project is known as the Scholarship of Teaching Project that is facilitated by on-going Portfolio Seminars. This paper examines and describes some of the results of this work. It first outlines a brief context, defining how the project came about and what it entailed. It then takes up the findings of a study about what staff say they have discovered and value in the process, and highlights a review of how a reflective portfolio process provides a scaffold for staff engagement and learning. In conclusion, it discusses the institutional implications of this work. *What is revealed is how reflective engagement by staff, that is, their active interrogation and documentation of their teaching and the learning of their students through a portfolio process, becomes a critical vehicle for professional learning and development. The UCC experience provides a case study of the dynamics of reflective engagement as professional development within the university.*

The UCC Scholarship of Teaching project began with the challenge from UCCs President, Gerald Wrixon, to staff to apply for a new award for "Excellence in Teaching at UCC." Staff were to document and present evidence of their teaching through the creation of a teaching portfolio. Because of my research and previous work coaching teachers through a portfolio process (Lyons, 1998), I was invited, as a Visiting Research Scholar, to introduce the portfolio process. I agreed and in May 2001, I sketched out three seminars, each with a broad purpose: to introduce the portfolio process as a mode of inquiry into teaching and learning and a means to document it; to identify portfolio entries as consisting of evidence, artifacts, and reflections on teaching; and, to review how portfolio evidence would/could be assessed. The conceptual framework for the project, the idea of advancing a scholarship of teaching at third level, was drawn from an idea then gaining currency, that is, that there is needed at third level a new way to capture and convey the knowledge of teaching. Although the rationale for this work has a surprisingly long history, the year 1990 is an important starting point, a pivotal, if not, a transformational moment, one that came to provide a context for the UCC project. In this presentation, I want to keep in mind a set of questions:

- How can the concept of a scholarship of teaching facilitate reflective engagement and/ or professional development?
- With what results? and,
- With what possibilities for the future? How can reflective engagement be encouraged? sustained institutionally? Advanced? What might stand in its way?

**The Context: Advancing a Scholarship of Teaching through a Portfolio Inquiry Process**

In 1990, Ernest Boyer, of the Carnegie Foundation for the Advancement of Teaching, published a ground-breaking book, S*cholarship Reconsidered: Priorities of the Professoriate* (Boyer 1990). In it, he effectively carried an argument for supporting research on teaching into the heart of academia. Calling for the radical re-consideration of scholarship within the academy, Boyer argued that colleges and universities needed new forms of scholarship beyond the traditional research model, what he termed the *scholarship of discovery*. He called for three additional forms of scholarship: a *scholarship of integration* that would go across disciplines to capture and interpret work at their intersections; a *scholarship of application* that would address real, consequential problems of people and institutions; and, a *scholarship of teaching* that would not only contribute to knowledge but transform and extend it.

Boyer's work launched a series of investigations into college teaching and such questions as: What is the scholarship of teaching? How can it be documented, represented? But it was Donald Schön who saw that if Boyer's idea about teaching was to be taken seriously it must "produce knowledge that is testably valid, and [such] claims ...must lend themselves to intellectual debate within academic communities of inquiry" (Schön, 1995, p.27). Schön saw too that the new scholarship of teaching implied a kind of action research, planned and conducted by faculty themselves, not by some outside, objective observer of standard scientific inquiry.

Some 60 years earlier, in 1929, philosopher John Dewey made a strikingly similar argument. In his book, *The Sources of a Science of Education,* Dewey called for a conception of educational scholarship that differed from the scientific, hypothesis testing model just then emerging, but to become the standard in American institutions of higher education (Lagemann, 2000). Insisting that theory and practice had to be integral to one another, Dewey was concerned that education research was developing at too great a remove from practice. In consequence, he suggested,

> many professors in other lines in universities have not been awakened to the complexities of the educational undertaking….and scholars of education were increasingly likely to speak only to each other." Dewey insisted that "… the problems which require scientific treatment [in teaching] arise in actual relationships with students…, [thus], it is impossible to see how there can be an adequate subject matter[ to investigate], unless there is active participation on the part of those directly engaged in teaching.(Dewey, 1929, 25).

Seventy years later these concerns of Dewey are echoed by Boyer and Schon. As bookends for a century of education research, their words serve as a cautionary tale, underscoring a long-standing antagonism to teachers themselves engaged in interrogating their own teaching practices.

Although Boyer's new scholarship of teaching implies Dewey's imperative – action research, planned and conducted by faculty themselves – the question remains how this is to be accomplished? How should it be documented? Represented? By whom? Would practitioner research count as real research? For even though we are in the midst of a radical transformation of the relation between the researcher and the researched, practitioner research still raises questions about who creates this new knowledge and about the validity of the knowledge uncovered (Anderson and Herr, 1999).

As scholars in the United States and the UK took up the idea of a scholarship of teaching, several projects were launched under the leadership of Lee Shulman of the Carnegie Foundation with the assistance of colleagues from the American Association of Higher Education (AAHE). Shulman had averred:

> My argument is that until we find ways of publicly displaying, examining, archiving, and referencing teaching as a form of scholarship and investigation, our pedagogical knowledge and know-how will never serve us as scholars in the ways our research does. The archival functions of research scaffold our frailties of memory, and we need something comparable for the scholarship of teaching (Lee Shulman, 1998a.)

It was through the work of Lee Shulman, along with that of his colleagues, that the idea of a portfolio emerged as a candidate for representing teaching for a new scholarship of teaching. Although the portfolio idea was well established as a means of documentation, over time it became something more. An examination of portfolio development reveals a subtle shift in emphasis from the portfolio as means and document of assessment to the portfolio as a deliberate and intentional method for scaffolding practitioner inquiries into a range of issues of teaching and learning. But why portfolios?

**The Portfolios as a Theoretical Activity**

Portfolios have a long and valued tradition with many professionals – with writers, artists, photographers, and architects, for example. They keep copies of their work to chart how over time it has changed. Some include only their best work. Others include a range of work. But portfolio uses in teaching and teacher education are only a recent phenomenon. Portfolios came into teaching in one form through teacher education in the 1980s and early 1990s on the second wave of school reform (Lyons, 1998). Then, reformers finally recognized that there would never be any lasting reform of education unless competent and caring teachers were at its center. How would such teachers be identified? Certified? If competent teaching is a complex, uncertain and often messy activity, it could not easily be documented or assessed. Traditional ways of credentialing teachers – by courses completed, degrees, or an acceptable grade on a National Teachers Exam – seemed inadequate to capture teaching's dynamics or dimensions. Portfolios emerged as a more possible medium (Bird, 1990). Life in classrooms, teachers at work could be caught through a portfolio with its entries and evidence of work over time. It could document how a teacher and his or her students were progressing, recording lessons taught, assessments made. It could carry a syllabus, a course plan, and ample samples of student work, revealing levels of student understanding – including student portfolios. Shulman argues that portfolio-making is far from a casual activity. It is, he claims, a theoretical act:

> it is important to keep in mind that the portfolio is a broad metaphor that comes alive as you begin to formulate the theoretical orientation to teaching that is most valuable to you ... Your theory of teaching will determine a reasonable portfolio entry. What is worth documenting, worth reflecting on, what is deemed to be portfolio worthy is a theoretical act (Shulman, 1998b, pp.24-25).

Typically, a completed portfolio begins with an introduction, a statement of one's teaching philosophy, followed by a set of entries and evidence, each entry labeled with a title, accompanied by a rationale for its inclusion and a reflection. It concludes with a final reflection.

## The Centrality of Reflection

Importantly, in this process each portfolio entry carries a crucial element: that is, a *reflection*. Here, echoing Dewey (1933/63) and Schon (1983), reflection is defined as:

> an intentional act of mind, engaging a person alone or especially in collaboration with others in interrogating one's teaching, especially a compelling or puzzling situation of teaching or learning to construct some understanding of it. It is likely cast as a narrative for it is a story of meaning and it can raise ethical issues for those involved (Lyons, 2002a, p.99).

Through reflection, a teacher revisits and inquires into his/her own teaching, assessing what succeeded or failed and why. In this process, teachers uncover the meanings, and interpretations they make of their own practice, their refinements of theories, their understandings of what students know and understand, and how they as teachers need to change or try-out new ways of teaching (Dewey, 1933; LaBoskey, 1994; Schön, 1983). This reflective interrogation, then, looks both ways: to past experience and forward to future ones. Most portfolio makers claim reflection is the core of the process, essential to bringing new knowledge to consciousness, making it available to themselves and others.

The work of Shulman and the adoption of the portfolio by the National Board for Professional Teaching Standards in the U.S. as its primary means of assessing experienced teacher candidates for Board certification proved pivotal to reflective portfolio development. But recent history of the portfolio highlights an important development: the subtle shift from the portfolio as a mode of representation and documentation for the assessment of teaching to the portfolio as a more deliberate method for reflective inquiry into teaching. This development underscores, too, a dramatic shift to a view of teaching as a kind of scholarly activity. Ernest Boyer(1990) helped to precipitate this development with his call for a new scholarship of teaching, and the portfolio idea found a place in higher education.

For an activity to be designated as scholarship, the American Association for Higher Education (AAHE) suggests that three characteristics are needed:1) It should be public; 2) It should be susceptible to critical review and evaluation; and, 3) It should be accessible for exchange and use by other members of one's community (Shulman, 1998 a, p.5). To AAHE, the portfolio idea offers the possibility of meeting these goals, either through a *Teaching Portfolio* or the Course Portfolio. The Teaching Portfolio can be defined as "the structured documentary history of a carefully selected set of coached or mentored accomplishments substantiated by samples of student work and fully realized only through reflective writing, deliberation, and serious conversation" (Shulman, 1998b, p.3).While there may or may not be a set of specified entries for a teaching portfolio, it usually is thought of as comprised of a range of evidence of one's teaching. For example, there might be a statement of one's teaching philosophy or beliefs, a syllabus, a video of a class, sample assessments used to determine what students know and understand, etc.

The *Course Portfolio* focuses more specifically on a single course (Hutchings, 1998a). Creating a course portfolio is or can be inherently an investigation for, as Shulman suggests, it depicts a "journey motivated by purpose and beset by uncertainty. A course, therefore, in its design, enactment, and analysis, is as much as act of inquiry and invention as any other activity more traditionally called research or the scholarship of teaching" (Shulman, 1998a, p.5).

Portfolios are constructed through their entries. Each entry is a significant piece of evidence that creates a portfolio maker's vision of teaching and learning. It is a professional undertaking as well as a theoretical activity. Each entry usually includes some artifact, that is, some piece of evidence related to the entry, such as, a syllabus, a contract between practitioners in training, samples of student work, etc. Portfolio entries vary with the purpose of the portfolio, whether a teaching, course portfolio, etc. The portfolio usually opens with a statement of its purpose along with such basics as a table of contents. It may have an organizing theme. Most portfolios that document teaching, supervision or mentoring can be organized around design, enactment, and results.

Portfolios ought to be formally and publicly presented to colleagues, peers, etc. They need, too, to be scaffolded, that is, supported in their development. In the UCC project, one scaffold was provided by the weekly Portfolio Seminar presentations. Over the course of 2001 and into the spring of 2002, each week UCC staff representing all disciplines were invited to continue meeting together to share their teaching experiences as potential portfolio entries. In all, some 250 faculty attended seminars and 40 presented potential portfolio entries for their own teaching or course portfolio. Thus, the portfolio process provides a scaffold for a scholarly activity in three ways: as a mode of inquiry into teaching, an investigation into some puzzling aspect of teaching or student learning; as a means of documenting and representing such an interrogation; and, as a way to make knowledge public, open to scrutiny, and available to a larger teaching and research community – criteria for scholarship. But what do staff say they find in this process?

Data I discuss here are drawn from two sources: from research interviews I conducted with 20 UCC staff, 18 out of 23 who prepared and submitted a Teaching or Course Portfolio for the UCC award in 2002 and two of whom participated in a group interview about the portfolio process; and, from some 40 presentations made by UCCstaff at the weekly "Portfolio Seminar" during the 2001-2002 academic year. Next, I report some results of this process, what staff say they find and value in it; and, then I consider the implications of a reflective interrogation for a scholarship of teaching and learning.

### Inquiring into Teaching and Learning: What Staff Say They Learn from the Process

> We close the classroom door and experience pedagogical solitude. Whereas in our life as scholars, we are members of active communities: communities of conversation, communities of evaluation, communities in which we gather with others in our invisible colleges to exchange our findings, our methods, and our excuses, I now believe that the reason teaching is not more valued in the academy is because the way we treat teaching removes it from the community of scholars
>
> <div align="center">(Shulman, 1993, pp.6-7).</div>

It was on a May morning in 2001 that some 40 members of the UCC staff gathered to find out about portfolios and to consider how they might begin creating entries and evidence for their own teaching portfolios. At that first seminar, I asked if there were volunteers who might share some aspect of their teaching or their students' learning that they might consider as a potential entry for a teaching portfolio. Two members of the medical faculty who team-teach a course in Epidemiology were among the first to volunteer to present a potential entry for a teaching portfolio. It was the end of the school year and faculty were fresh from reading scripts, reviewing exams and other documentation of their teaching and their students' learning. "We decided to look at some evidence from one of our courses that we find puzzling," the two began (Lyons, 2002b).

Describing two assignments given to their students, each designed to examine and analyze epidemiological data, these teachers discussed how they had found one assignment successful with their students and the other clearly not, and this was the second year in a row that they had assessed this result. They described the situation of the one assignment as "disastrous." What followed was a discussion, not only about inquiring into why one assignment did not work, but why this pair of teachers had continued with something they had reason to believe was a failure with their students. The idea that faculty could continue to pursue something problematic opened the discussion to what it is that people continue to struggle with and what that might indicate: potentially something held as valuable, in spite of its difficulties. How to uncover and correct these difficulties, make it possible for students to experience the kind or learning faculty envisioned, opened a critical question that came to be considered the heart of the interrogation and the seminar discussions: *How do we know what our students know and understand and how can we find out?* That question engaged and held UCC staff interest that was to continue over the course of the following school year. These interrogations in the end yielded important learnings for staff and what some call new knowledge about teaching and learning. What was it that staff discovered in the process?

**The Study and Its Results**

The basic goals of this project might be said to have been achieved, when in January 2002, 23 portfolios were submitted for the 2002 Awards for Excellence in Teaching at UCC. Five awards were made, as originally intended. It was acknowledged that at least twice as many should have been awarded. In the study I carried out, several portfolio-makers and some portfolio presenters offered their views on the experience of the portfolio process and shared them in interviews I conducted with some 20 out of 23 people who created and presented a teaching portfolio. In addition, some data is drawn from the last seminar of the year. Staff comments reveal the meanings they found in the process. But they also point to some larger implications of this work, if it is to survive and thrive within an institution.(See Zeichner & Wray, 2001, for a discussion of the relative lack of empirical data with results of portfolio uses in teacher education.)

The interview questions of the study included: "Looking back over the experience of creating a portfolio, what stands out for you or stays with you? What would you say you learned from this process? What was most challenging? What facilitates the process? What advice would you give to someone who is thinking of creating a teaching portfolio? Is there anything you would like to add?" Here I report on some findings as they cluster around similar issues (Lyons, 2002b; See also Lyons, Hyland & Ryan, 2002 for a sampler of portfolio entries of UCC staff.) Results of this current study reveal that while most faculty acknowledge that the portfolio development process was very hard work, more time-consuming than they ever realized it might be, staff also acknowledge that the reflective process gave them new knowledge. That seems to happen through emerging consciousness that had at least four dimensions and in the end leads to changes in teaching practices. These interconnected elements are discussed here more fully.

*Becoming More Consciously Aware of Teaching Practice through Critical Reflection*
*– Asking what am I doing? Why?*
Almost all participants interviewed about the portfolio inquiry process – 20 out of 20 – comment on how it has made them more consciously aware of their own teaching practices, of their beliefs about teaching, and of the importance of their day-to-day teaching. Some are surprised at seeing

exactly how the elements of their practice fit together. Some are surprised at the gaps they find in such a critical review. Others see connections and become more aware of certain aspects – things they say they may even have been doing or acting on but not explicitly aware-of. As one lecturer commented:

> I was putting together two courses for a teaching portfolio. And in doing that, I suddenly realized the connections between the two … I was not aware of the connections. Something I did not expect but discovered as I went along was coherence. Like someone said at the last seminar, suddenly they discovered that they had a teaching philosophy. Similarly, I had not been conscious of these connections. I discovered that there is a coherence to my own teaching. Now this reflective process makes that possible. It was something brought from my subconscious to my consciousness. In the future, I will be more conscious of the connections – that's part of the reward of this reflective process (Lyons, 2002b).

This may not be surprising. As Jerome Bruner(1996, p.10) reports, reflection is "a process of sense making, of going 'meta,' turning around on what one has learned through bare experience, thinking about thinking." Other staff describe similar ideas. One lecturer comments:

> I realized all of this, who I am as a teacher. I am a listener, how to communicate with dyslexic students, give notes in advance, have a break in class, allow students to ask questions, then use questions to prepare for exams – to know how to lead them to discovery. [But] I only realized all of this once I put it down on paper. Now I am more conscious of it.

This idea of a new consciousness has at least three related components:
*Making goals, concepts, and organizing ideas of learning more explicit to oneself and one's students. Asking: Does this course fit together? How?* One faculty member identified a new "explicitness" as a result of the reflective portfolio process, "…it was very interesting to put in writing explicitly what I wanted to put into the course, what I wanted students to do, what I wanted students to learn." This faculty person has decided that next autumn he will give his students this rationale for his course. He wants to see what difference it might make to their learning. This finding fits with the work of such researchers as Howard Gardner and others who today argue that teaching for student understanding requires a level of explicitness of organizing questions, concepts, and content as well as a focus on student engagement and performance. Such explicitness in turn leads to another awareness: of one's students.

*Becoming aware of students needs as learners, coming to know what they know and understand of the concepts and content under study. Asking: What do students know and understand? How can I find out?* Almost all UCC portfolio makers comment on their increased awareness of students, their motivation, how they know what students know and how they need to find out, and how they need to consider their students in each plan for a course. One lecturer commented:

> I was asking questions about what I have been lecturing on for over 20 years. And I suppose you fall into a pattern. I'll talk about my favorite book. But you are looking at it all from your own point of view. But with this portfolio process I found myself looking at it from my students' point of view. And I am thinking: my students are 22 or 23 years old. What kind of sense will they make of my preferences? My preferences

shouldn't be what we are doing at all. So it was kind of scary ... This text may be important, but how could I find some take on it that an 18 or 19 year old could find something in this? And sometimes I didn't have the answers. So I decided to re-do my lectures. And so from last fall I re-wrote my lectures. I kept some texts and brought in new ones.

Other staff similarly report greater experimentation with their courses and with continuous assessment in their search for new ways to do that. Others become more conscious of how new curriculum practices can change students' experiences in important ways:

Another realization is of what things were like before modularization. We could make assumptions that all students have had certain courses. But now ... you cannot predict who is in class and cannot be assured of their knowledge – doing the reflective process made me more aware of what our students know and understand.

*Interrogating practice to discover patterns. Asking what needs to change in one's teaching practices, continuing investigations.* One clear outcome of this kind of reflective consciousness is that faculty report changing their practices, of experimenting with new ways of doing things, of engaging in their own on-going investigations or simple observations as part of their own professional development. One engineer reported:

One thing struck me when I was doing the course again. I did find a lot about problem solving in the training to be an engineer. But because I had been reflecting more, when I came to the second course suddenly in a course that is heavily dependent on technology – power point, computer – I suddenly found myself using the white board. I was pausing to give a lot more examples, working them through on the board. If I hadn't carried out this reflective process, I think I would not have been as aware and would have been more complacent.

*Changing One's Practice: Asking: How can I make this course better? This program?*
Most participants in this study, again 19 out of the 20 involved, acknowledge that their interrogations lead to change in their teaching practice.

And especially after making the presentation here in the Seminars ... it gave me great confidence to improve in the ways I was teaching, in material I was teaching, and in my overall ability. And to modify. I realized that there were lots of things I would change.

Thus, there is revealed here – in this sample of portfolio inquirers – that a reflective inquiry process leads them to new, usable knowledge of one's teaching practices and to new ideas and hypotheses about what may be important changes to pursue in their practice.

**A Reflective Cycle: Reflective Engagement Creates a New Consciousness of One's Practice**

These findings – documented from some 20 interviews with faculty who created a teaching or course portfolio or presented at a seminar – suggest a cycle of reflection scaffolded by a portfolio inquiry process. They include the following features:

*Building a forum for critical discourse about teaching and learning across disciplines.*
Almost all 20 faculty respondents commented on the fact that the portfolio seminars were initiating a new norm at UCC, that is, a forum for staff to engage in a discourse about teaching and learning across disciplines. As one faculty member talked about it as "one of the most supportive experiences I've been through in the university." She goes on:

> Just going to those weekly seminars and not having people judge you. We were all in it together. I don't know how that happened. There was a great spirit of support and in all honesty I don't always find that. Often people are just pulling against each other. Here people were saying, "I tried this and it didn't work." You don't hear people saying that. Here people were sharing, "I tried that and it was a disaster, I tried it again and it was a disaster, but now I am satisfied." And there were other spin offs as well. You heard people saying, "Say did you go to that seminar by Dave Sheehan? I'd love to take his course myself." We could see there was a way of being an academic that is supportive, collaborative. And you were learning. I saw someone from Civil Engineering using diagrams and I remember thinking, I could teach grammar that way. That was wonderful. You could see that teaching does not have to be a private enterprise. Looking at other people's teaching, you thought "I could do that." So the whole of teaching was opened up."

*Linking the needs of learners and the advances in one's disciplines to forge new responses.*
Finding a pedagogical challenge when his students came to class weak in math and chemistry and turned-off by difficult physical concepts, one lecturer in Biochemistry decided to use a non-math way to present critical concepts in his course and increasingly became creative with computer-based approaches and other audio visual aids. In addition, he describes how changes in his discipline itself have shaped his practice. Recognizing that in the future three dimensional data display for proteins with the special folding inward problems of their structures will be important to help student understanding, this innovative teacher devised a special computer program that allows students to manipulate and investigate proteins and their properties. Later this same teacher realized how his innovations in teaching were leading him to more effective presentations of his own research. (See Huber & Morreale, 2002, for a discussion of disciplinary styles.)

*Identifying how a discipline shapes teaching.* Some staff commented on how their disciplines differed and how that made their documentation of teaching different. For example, members of the Medical faculty commented on how their courses are usually delivered by a team of faculty and thus no single professor is responsible for a Course Portfolio. What impact different disciplines might have on developing a scholarship of teaching emerged. It deserves serious attention.

*Identifying the need to extend systematically opportunities for faculty to gain knowledge about teaching and learning.* One significant discovery of this work already mentioned is how little prepared faculty are for third level teaching (Huber, 1998), and how eager some are to increase their knowledge and understanding of teaching and learning. Again and again in interviews and in public, faculty described how they came into teaching at third level, were handed a syllabus and told to teach. Most relied on how they had been taught-largely through lecture format. One lecturer commented:

> I suppose I learned that we were not very well prepared for teaching. You never really got any instruction on how to teach. You were thrown in and you had to sink or swim.

While I always loved teaching, it came to me that teaching is one of two main areas of work in the university, yet there were no guidelines at all. You got your 100 or so students and that was all. I suppose to a large extent students are the guinea pigs. You have all those new people, new faculty being tried. And historically there has not been any review to see if teaching is up to par. So the portfolio work brought home to me that students are the main people in the university and that is not being taken into account.

Many staff had searched on their own for assistance, taking courses in a surprising range of places and valuing what they learned about their daily work. One woman shared a discovery she found: "I've learned a kind of language that people in education talk. I didn't know what all of these things meant before-such as active learning, or objectives, goals, aims. Now that I [do]... I am wanting to re-write all of my courses" (Lyons, 2002b). Such comments cry out for systematic delivery of a staff program about teaching and learning.

*Exploring the evidence of student learning: What do students understand and know how to do?*
One question, "How do we know what students know and understand and how can we find out?", sustained staff interest all through the seminars. The question forces consideration of exactly what students learn from courses. Staff realized how little of student learning was ever tapped by the standard course evaluation questionnaire. Faculty need to continue to explore this question and share their efforts as they gain strategies to uncover student learning.

*Linking reflective engagement to a scholarship of teaching: Making the evidence of teaching excellence and its scholarship public and open to investigation.* In the last portfolio seminar, faculty came back to the question: What is a scholarship of teaching? A vigorous dialogue emerged. The academic who began the discussion said (Lyons, 2002b):

> What I have learned is that learning is an on-going process. When I was doing the portfolio I came across a number of quotes. The assumption of some was that if you had a PhD it would immediately guarantee that you would be a good teacher. Then I asked: what is excellence in teaching? I [now] see that excellence is not a state: it is a process. Excellent teachers are engaged in a process of development. Then I asked: What is a scholarship of teaching? What does it mean? Does it mean doing research and publishing? I think it does mean reading other people's research. But what else does it mean?

Other staff joined in. One person commented that they have found that some faculty objected to the term. Rejected it outright, saying that teaching is never a form of scholarship. Another person then commented:

> It is a great question. I think that we are all saying that teaching is very important for the whole university, for us, and for our students. Anything important has to be documented. In doing research, I start by writing. And I think it is the same for teaching. We must start with that idea that teaching is very important. Scholarship is very important. I find that I have thought more about this course from this experience with reflective writing than ever before. Excellence in teaching is a process. You have to change things around, experiment. I discovered that you must think about your courses."

Another added:

> I feel very strongly that a lot of the process is an investment and a journey of self-discovery, a journey of discovering your own involvement – your own learning. New knowledge comes from this process. Syntheses happen … and that knowledge uncovered, falls within the definition of scholarship. Like we could say: Why another critique of Finnegan's Wake? Or of Dante's Purgatorio?

A final word was added to this conversation:

> I think a scholarship of teaching also must involve students. It is not done alone – only in relation to the self. It is simply not self-referential. It creates a discourse about students and their learning-that is part of the scholarship of teaching. It creates a discourse and invites people to join in this community of discourse" (Lyons, 2002b).

## Implications

The implications of this work on reflective engagement and advancing a scholarship of teaching immediately suggest important questions: How can this work be sustained? At what level? With what resources? By whom? Considering:

◆ At what level should a discourse on teaching be introduced in the academy? How? How should it be sustained? Through what forums?
◆ Should the idea of engaging in a reflective inquiry and documenting one's teaching and presenting it to colleagues be built into permanent structures of the university, to the structures of promotion and rewards? How? Which promotions?
◆ How can faculty be sustained in their efforts to deepen their knowledge and understanding of teaching and learning? How? By degree or certificate programs
◆ How can ongoing dialogues about teaching and learning, about what students know and understand and how faculty can find out?
◆ What research ought to be undertaken about third level teaching? About what constitutes good teaching within the institution? About teaching across disciplines? About a scholarship of teaching? By whom?

I respectfully invite the readers of this journal to respond, to offer their insights, observations, and concerns about the possibilities of a reflective portfolio process for advancing a scholarship of teaching, extending this dialogue.

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# CHAPTER 4

## REFLECTIONS ON A MENTORING PROGRAMME
## IN A UNIVERSITY CONTEXT

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### Introduction

In attempting to represent the spirit of *UCC as a Learning Organisation*, this article will take the form of a portfolio entry. I do not know of a more pro-active medium in which to try and implement an agenda of change and document my experience of this process than the collegial portfolio one, fined tuned by Nona Lyons and my peers in our weekly sessions in the Council Room, over the past three years. The success of these sessions and of the portfolio as a medium of documenting them is already well represented (Lyons, Hyland and Ryan, 2002). In that publication, I took the opportunity to put forward my philosophy of teaching; now I seek to put this into practice and refine it in the context of my role as mentor.

### Context of this entry

This entry seeks to document my experience of peer-mentoring in UCC from 1995 to the present time. I would have been more apprehensive of my role, but for my earlier experience of it, in my years as a secondary school teacher, when I was privileged to take some Higher Diploma in Education students under my wing and was bitten by the mentoring bug. I learned then that mentoring was one of the best ways of coming to know and understand teaching and that I had much to learn from my younger colleagues about new challenges and approaches to teaching and learning. In listening to their concerns and attempting to walk the talk together, I began to know what I thought and understood about learning and its role in good teaching. Gradually, I grew less afraid of the role, for there was no pedestal involved – just colleagues sharing the same journey.

In setting a context, there are two words from the title to this entry that I would like to explore. The first is the word mentoring itself and its connotations. In Homer's *Odyssey*, Mentor is the trusted and experienced advisor to the young Telemachus, hence the derivation of the word 'mentor'. In Latin, the word comes from the past participle of the verb *monere*, to advise, or literally "to make to think". It is my hope that this entry will literally make me think about what I have learnt in relation to teaching and learning in my role as mentor and about how that might contribute to furthering the role of UCC as a learning organisation.

The idea of being a trusted and experienced advisor is a tall order, which I can live up to only in so far as I have defined it above – I am the one who has the most to gain and will learn most from the encounter. There has to be a humility at the heart of this process, for the trust of peers is hard won and easily lost. And the words "experienced advisor" can have negative connotations, for it can be dangerous to set oneself up as expert, or to be seen as such. However, we grow into our role as professionals over time and should not shy away from the responsibility of inducting colleagues

new to the field. Equally, it is important to research and document our practice, to be accountable and contribute to the scholarship of teaching and move beyond opinion and repetition: becoming a mentor is one way of doing this. The "experienced advisor" is still fallible – but having been around the field for some time, one is likely to have already lived through the experiences of the newcomer. It is experience in this sense of 'living through' which is valuable and moves the encounter beyond the didactic and hierarchical to the supportive and interdependent. In that context, the mentees become mentors for each other and so the process perpetuates itself, as it should.

The word reflection also merits some context at this point. The importance of reflection as a key ingredient in developing practice and bringing about change, goes back to Socrates, who said that the unreflected life was not worth living. Twentieth Century thinking on the matter would concur with him. John Dewey (1991: 3), for example, defines reflection as "that kind of thinking that consists of turning a subject over in the mind and giving it serious and consecutive consideration". Reflection is, therefore, a question of habit and attitude and commitment. In Dewey's words "a new habit of mind has to be developed over time" (ibid). Schon (1983) distinguishes between reflection *in* and *on* action. The former takes place as a situation is ongoing. It is a conscious process that makes the practitioner question a situation and its underlying assumptions, often leading to spontaneous interventions. Reflection-on-action takes place after the event and may bring about a change in practice. In terms of the portfolio meetings and the teaching and learning programmes organised at UCC, both kinds of reflection are crucial, underlining the habitual, inquiring nature of reflection and its thrust towards action and change. There is nothing abstract, gratuitous or self-indulgent about reflection. It is a necessary quality of mind that in Dewey's terms (1991) goes hand in hand with open-mindedness, whole heartedness and taking responsibility for our actions-key qualities in a learning organisation.

In defining a teaching portfolio, Lee Shulman (Lyons, 1998: 37) is conscious of its reflective and deliberative process and of the importance of mentoring as a supportive structure:

> A teaching portfolio is the structured, documentary history of a set of coached or mentored acts of teaching, substantiated by samples of student portfolios and fully realised only through reflective writing, deliberation and conversation

In the context of the twentieth first century and current work at UCC, Nona Lyons (2002:17) writes about reflection as follows:

> Through reflections, a teacher revisits and inquires into his/her own teaching, assessing what succeeded or failed and why. In this reflective interrogation, teachers uncover the meanings and interpretations they make of their own practice. Through a portfolio documentation they can make this knowledge public and open to scrutiny. Thus, the portfolio can be both the means of inquiring into teaching and a way of recording the results of that process

In creating a context for this entry, therefore, I wish to draw attention to the interrelated nature of reflection, portfolio making and mentoring, one giving rise to the other. For me, reflection is not a linear but a cyclical and incremental process and my experience as mentor continues to be one way of refining this. In drawing this section to a close, I now turn to Steve Seidel's (Director of the

Project Zero Graduate School of Education at Harvard) useful frame of reference for reflection, in terms of the various types of "looking" which it invokes: looking back on the experience, looking inward towards analysis, looking forward towards the implications for future practice and looking beyond to the broader literature and holistic picture. The reflection which follows will use Seidel's model as a way of scaffolding this entry.

**Rationale for this entry**

An exploration of a mentoring programme provides a gauge of what changes are taking place in the university from the 'bottom up'. As such, it is worth documenting and provides a catalogue of the key concerns and issues of an academic staff grappling with change. A mentoring programme can only grow out of the needs and concerns of mentees. By its very definition, it cannot be imposed, hence its usefulness in providing one part of the jigsaw of what a learning organisation looks like.

**Reflection: Looking back**

I have been involved in the Staff Training and Development Programme at UCC since 1995, providing induction and in-service sessions for academic staff, under the direction of Vice President Áine Hyland. In the first two years, these took the guise of Orientation sessions for new staff and addressed their immediate needs and concerns in the area of teaching and learning. I gave sessions on how to teach large groups, how to conduct a tutorial or seminar, how to take and give feedback and how to move beyond the transmission model in the lecture theatre. My focus was primarily strategic and practical.

In the autumn of 1996, in response to requests from lecturers who wanted more of the strategies and thinking behind the Orientation sessions, I set up a teaching support group. This was a small, self-selecting group of interested teachers who represented a cross-section of disciplines primarily from the Arts Faculty, though we did have one scientist. We met regularly over three and a half years, about three times a term on a Friday afternoon, in the Education Department. These sessions were informal and needs based, the latter centering primarily around the pedagogic and the pastoral – the need to talk about and share experiences. During the three years of our meetings, we built up an atmosphere of trust and security and I am eternally grateful to that band of colleagues who taught me so much about university life and about teaching and learning[1]. Looking back on it now, it was an extraordinary time, for our meetings over that length of time were fuelled only by our interest in teaching and in collegial discussion. This was before the days of teaching as a benchmark for promotion and before the President's awards for teaching excellence (though I welcome these wholeheartedly and it was a great source of pride to me that in the first year of the awards, three of the five awards went to members of the group).

During our time together, I documented each session, keeping an account of the issues and concerns emerging and attempting to address these as we progressed. Initially, I videotaped our discussions, since we were in the microteaching room, in an effort to be rigorous and not to miss anything. However, I soon found that this was restrictive and invasive and abandoned the practice, relying on my notes to recall discussions. The main pedagogical needs that emerged for us can be summarised in terms of the need for different models of and approaches to teaching and learning. These were characterised particularly in the following types of intervention: how to introduce

discussion and facilitate feedback, how to teach large groups interactively, how to maintain student interest, how to cater for student diversity in terms of disciplinary focus and cultural difference, how to find out what the students know and understand, how to evaluate a course. These sessions contrasted with those of the Orientation programme, since I now had the time to build in a conceptual framework and to ground the strategies outlined in contemporary theories of teaching and learning. Since I was also involved with the Multiple Intelligences Curriculum and Assessment Project at this time, I drew much from the theories of Multiple Intelligences and Teaching for Understanding and from the work of Project Zero at Harvard to guide our thinking. What was significant at this time, therefore, and important in directing my future inservice practice, was my focus on performances of understanding, rather than on strategies per se. The latter needed appropriate educational goals if they were to be more than a first aid kit. However, I make no apology for dealing with the immediate needs of staff – thinking about teaching and learning is a habitual and gradual process that is beyond the remit of an orientation day. What is important in the context of our work as a learning organisation today, is that we now have a programme of workshops and a network of colleagues and meetings in place, so that we can move beyond the immediate and functional to the theoretical and cultural underpinnings and assumptions of our teaching practice.

Other issues that were important for us during our time together can be grouped as follows and give a picture of the university in the late 90s from the perspective of one small group: Information Technology and its effect on and relationship with teaching; the Web and its sources of information and the use and abuse of these. The problematic nature of some teaching spaces was also lamented, particularly in relation to large classes, as was the lack of facilities and resources in certain spaces and certain subject areas. Modularisation and its effect on teaching, learning and assessing was a recurrent theme. The question of gender issues and of multicultural perspectives was also a frequent point of discussion. The demoralising effect of an emerging bureaucracy on teaching was also a cause for much concern. We did not solve these problems, but we did give ourselves the space and time to name, discuss and share them and locate them within a broader context where possible. There was insight and we made changes to our practice and took small steps forward. The lasting benefit for me is in the long term friendships I have made across college and that sense of feeling part of the place and part of a learning community. With the introduction of the Teaching Portfolio Seminars, our teaching support group found a niche and a broader context and support structure and we moved beyond the tea and biscuits at Leeholme (most welcome at the time!) to light lunch in the Council Room.

**Looking inward**

In 2001-02, as part of the Staff Training and Development programme, I provided a course of 10 sessions on *Multiple Approaches to Teaching and Learning*. By definition, its focus was pedagogical and drew on the theories of Multiple Intelligences and Teaching for Understanding. Given the growing interest in teaching and reflective practice in the portfolio sessions, it was now feasible for me to invite participants to take an active learning approach to their teaching and student learning. I encouraged them to focus on a module they were teaching and to develop this in a student-centred way, in terms of identifying understanding goals, devising key activities/performances that would demonstrate and challenge student knowledge and understanding and designing appropriate assessments to harness and develop student learning. Derry Cotter's work during this course speaks for itself (Lyons, Hyland & Ryan, 2002, Chap.10) and does much to further the

cause of active learning, showing that it is possible in all disciplines and settings (even in his old school classroom, now his lecture theatre, and in the presence of some ghosts from the past !) Another participant was concerned with the way modularisation had caused her course to be disjointed. By taking a teaching for understanding approach to it as outlined above, making her goals visible, her tasks focused on understanding and her assessment based on a process of feedback, she gave her course a sense of cohesion and direction and made assessment part of the module. Several members of the group planned a unit of work they were about to teach, or critiqued a unit already taught, using the Teaching for Understanding framework. Together we were making progress, for now the focus was more on student learning and on the pedagogical framework that would facilitate this, rather than on the lecturer's subject expertise.

The academic year 2002-03 saw the development of a HEA funded course entitled *Mentoring in a University Context*. I intend to take a close look at this module in the hope of identifying what mentoring roles are to the fore in UCC and what roles need developing as we grow into being a learning organisation. In applying for funding, a broad brief was envisaged to capture the various guises that mentoring might take and to allow for flexibility in uptake. In the *Staff Training and Development Programme 2002-2003*, (Human Resources, 2002) the handbook defines a mentor as "an experienced person with whom the inductee can feel at ease and to whom he/she can speak freely about aspects of their work, including personal feelings, and who can act as an appropriate role-model" (p.63). The roles associated with mentoring which we proposed in the handbook highlighted those of the Pastoral, Facilitative, Role Model, Assessor and Supervisor.

I provided seven lunch time sessions on Mentoring[2] in the Council Room, on a series of Thursdays, from November 2002 to May 2003 – indeed, it is significant that all of our meetings about teaching and learning take place in this central and historical room, which is associated with policy and decision making. The first session on November 7th, began with an overview of the concerns of staff to date, based on the support groups I had already worked with, as defined above. There were fourteen staff members present, representing a cross section of disciplines and departments across college including: Accountancy and Finance, Geology, Nursing, Sociology, Education, Paediatrics and Admissions. Much of the session was spent identifying the needs of the current group. Though there was a general interest in the broader pastoral and 'critical friend' aspects of mentoring, including the mentoring of postgraduate students who were teaching courses as part of their studies, the group as a whole wished to focus on immediate pedagogical needs which they felt were pressing. Thus, Session 2 was devoted to *Conducting a Tutorial*, and Session 3 focused on *Teaching for Understanding* and on some excellent examples from the group on *Participative Approaches to Learning*. The regular group of six to eight members, then asked for an input on the theoretical underpinnings of *Assessment,* which defined Session 4. The next session continued with the question of *Assessment: What Works?,* focusing on examples from the group that they had found successful. The last two sessions reviewed the work and revisited our approach to mentoring. The feedback was very positive and encouraging, as is evident in a selection of comments from the group:

*"These sessions are about sharing experiences, trying things and seeing what works. I need to be kept informed to be in a position to be mentor".*
*"The course was needs based"*
*"I have a new excitement about my teaching and my students have a new ease"*

*"My teaching has completely changed – before I would have focused on subject –matter, now I'm student friendly".*

*"I didn't think that I was bringing anything with me. Now I have some theory backing what I already do in class"*

Looking back and into this course, three of the five roles outlined in the handbook primarily invoked the pastoral, facilitative and role-modelling aspects of the mentoring process. The *Staff Training and Development Programme* handbook defined the pastoral as " providing personal support" (p.63), which the course fulfilled in its attempt to be needs based and sensitive to the experiences of the group. As trust and security grew in the group, members supported each other and took on informal mentoring roles in the exemplars and advice they provided to peers. The facilitative role was to the fore since "creating an environment conducive to personal discovery, analysis and reflection" developed as participants revisited and took on their own practice. However, participants were not yet ready to write portfolio entries, but did focus on presenting plans and on sharing strategies that worked. The mentor as role-model was frequently invoked as members of the group shared good practice and provided student-centred models and strategies for each other. I also acted in this capacity, providing exemplars of good practice. However, we did not get as far as making videos of practice, with a view to micro-teaching and analysis of 'live' teaching. This is one aspect of the programme that I would be keen to develop in the future.

The role of the mentor as assessor was played out informally, since there was much feedback on work presented and a particular focus on self-assessment as participants began to fine-tune their individual practice. Peer assessment also manifested itself in the responses and advice given to others' work. However, there was no formal assessment of participants' work, nor would it have been appropriate in this context. Leading on from this, the only role that did not emerge was that of the mentor as supervisor. In advertising the course it was suggested that the mentor could "join in teaching sessions and provide feedback" (p.63). In the opening session, I did suggest that colleagues could work in pairs and provide this service for each other, becoming 'critical friends'. However, this was a tall order for those teaching for the first time and is an aspect of mentoring for a more advanced course that will hopefully develop as the current network of colleagues widens, through regular portfolio seminars and workshops on aspects of teaching and learning. I was not asked by any participant to sit in on lectures – nor did I expect this to happen in an introductory course. This is where technology can come to our aid and where a video of teaching practice can be invaluable in giving the mentor and peers access to the session, without compromising the lecturer.

## Looking forward

There are some salient points that draw this entry together and point to the various levels on which a learning organisation works. Firstly, it is best to work from the 'bottom up', addressing the needs of staff as defined by them, no mentoring programme can be successful and ignore this point. Secondly, mentoring is a complex concept that plays out on many levels within the various roles of each lecturer and is made doubly so by the various traditions and practices of individual departments. The role of the lecturer in itself is complex and includes that of teacher, learner, mentor, assessor, administrator, counsellor, tutor, demonstrator and so on. Mentoring itself has many guises and works on at least three levels: there are the professional and personal needs of the lecturer/teacher, the needs of postgraduate students and undergraduate student needs. This course

focused on the professional needs of the lecturers/tutors in question, but also included student needs from this perspective, since teachers were interested in involving students in the learning. Thirdly, the definition of mentoring has to be flexible, since it takes on different guises depending on the group. We need a holistic approach to mentoring that begins where the participants are and works from there.

The work of the Staff Enhancement and Development Committee honours this approach in its support of the portfolio seminars, the Staff Training and Development Programme and the President's Awards for Teaching Excellence and Innovative Research into Teaching and Learning. Gradually, staff are beginning to mentor each other as they continue to meet and present and listen to each other- this is a healthy and cooperative way for a learning organisation to work. That there are certain incentives is also important to mark the status of teaching as a valid form of research.

Concerning the implications for future practice of the mentoring programme explored above, feedback indicated that participants were happy with the course as given. However, the following suggestions were made for developing an advanced mentoring course that would focus on the following:

*"In the future we could study images of teaching- beginning with film representations and then progress to micro-teaching"*
*"Work on the aspect of mentoring Teaching Assistants"*
*"Develop our emotional intelligence with learners"*
*"Focus more on reflective practice and on developing a portfolio"*

These suggestions are valid and well taken. What is heartening is that they are indicative of the progress already made by lecturers in the insights they present.

## Looking beyond

The first place that UCC as a learning organisation should look to see an image of itself, is to its own Strategic Plan (UCC, 2000). In terms of the mentoring programme outlined above, it is encouraging to find that the teaching needs identified by participants are acknowledged as valid aspects of a lecturer's work and research:

> "There should be parity of esteem between teaching and discipline-based research ... Research into the teaching and learning process should itself be recognised and rewarded in the same ways as other forms of scholarship. There is a necessity to encourage and support academic staff in the scholarship and practice of effective teaching"

Boyer's (1990) concept of the scholarship of teaching is clearly invoked and supported here and it is to UCC's credit that teaching is thus enshrined. Having a mentoring programme provides the support for teaching recommended in the Strategic Plan and manifests itself in its many guises in the context of the ongoing portfolio seminars and the multitude of other courses offered to support teaching and learning. By definition of its many roles, mentoring invites a reflective process that is mutually beneficial to mentor and mentee. The collegial act of coming together to share experiences and strategies, to name and discuss problems and give and take advice is what becoming a reflective practitioner is all about and serves to build scholarship, providing a shared vocabulary and a platform that makes us accountable without making us vulnerable.

I cannot close this entry without returning to another corner stone of this learning organization – that of the college motto: "Where Finbarr Taught let Munster Learn", which , as indicated in the introduction, I have already discussed in some depth. (Lyons, Hyland and Ryan, 2002, Chap.1) We have much to learn from this dictum about the nature of teaching and its dependence on learning. To place mentoring in this context is to realise all over again that in the teaching is the learning and visa versa- for effective teaching of oneself and others depends on learning. UCC could have no better mission for itself than to see itself more as a learning organisation. Our odyssey, then, is to continue to learn- 'to make to think'. There are challenges ahead, but as a learning organisation, we can identify several Mentors to guide us on our way – experienced and trusted friends, who are all around us from the Council Room to the Common Room.

––––––––––––––––––––

1  I wish to express my sincere thanks to the following people who made up the Teaching Support Group from 1996-1999 and who contributed so much to my growth and to the development of teaching and learning at UCC: Mark Chu (Italian), Una Ni Chaoimh (Geography), Orla Ni Dhubhghaill (Chemistry), Clare O' Halloran (History) Grace Neville (French), Anna Ridgway (Education), Sylvia Ross (Italian)
2  I would like to express my sincere thanks to Bettie Higgs who has co-ordinated these sessions for me and whose supportive presence throughout speaks volumes. I am also deeply grateful to Edel Barnes who voluntarily took on the role of being scribe throughout the entire course and was responsible for the detailed feedback notes I am privileged to have.

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# CHAPTER 5

## REFLECTIVE INTERROGATION FOR RE-FRAMING TEACHING

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### The Journey

Transfixed by the wooden elephant carving on the shelf of the market stall, the tourist stares in amazement. He gesticulates awkwardly, his eyes, overcoming the waywardness of his hands, communicate his fascination with the carving. The stall owner smiles knowingly, and bowing his head, he speaks in a whisper.
*'the Master'*
Placing the carving carefully in his knapsack, the tourist edges towards the foot of the hill. As night begins to fall, he stares at yet another summit, and graciously accepts an offer of accommodation. At supper mention of 'the Master' makes the villagers point upwards excitedly, their eyes shining in the firelight.

In the days and nights that follow, the tourist endures varying emotions as a myriad of summits stretch enticingly above him. Each challenge brings the temptation to succumb, as the trying terrain stretches his endurance to the limit. Sustained by the mystery of the carving, from somewhere he finds the strength to carry on, and on the fourth day the thatch of the Master's hut beckons from above.

Reaching the open door, the tourist removes the carving from his knapsack and holds it aloft. *'How do you carve it? So perfect, with not even a blemish'* The Master takes a rough block of wood from the corner of the mud hut. Using a roughly hewn chisel and makeshift hammer, he chips pieces from the wood, turning it slowly as he works. The tourist watches, as the carving takes shape before his eyes, the wood gradually giving way to the unmistakeable outline of an elephant. *'But how Master? How do you make the shape? It's so lifelike'* Reaching for another block of wood, the mystical carver smiles at the tourist and reveals the source of his magic. *'Master cuts away bits that don't look like an elephant'*

The journey of the tourist in many ways resembles that of the teacher. Searching for answers, the teacher encounters a multitude of problems and challenges along the way. Even as one summit is reached, another appears almost immediately, on a path that seems never ending. Over time there is progress, but answers to the teacher's most fundamental questions remain elusive or too difficult to comprehend.

Yet the search itself, as the tourist found, may be the most fruitful part of the journey. Because on that quest the teacher learns much about himself, which he did not understand before. He meets students on their terms too, as he seeks to involve them in what has now become a great adventure. And along the way he meets other teachers, each engaged in her own search for answers.

Without reflection however the journey itself would have limited value. Because, reflection *'illuminates what has been experienced'* and provides '*a basis for future action'* (Raelin 2001 in Fyfe 2002). In as much as critical reflection is a prerequisite for deep learning by students, it is equally the case for teachers.

Thus far, I have enjoyed every step of the teaching journey. Twenty years ago I joined the teaching staff in UCC. Equipped with the professionalism of a newly qualified chartered accountant, I brought enthusiasm and technical expertise to my students. In time I learned that vocationalism is but part of what academia must aspire to. There is also the need to raise the bar, to challenge one's students to consider alternative approaches in the creative and critical analysis of problems. Vardi (1999) emphasises the importance of such an approach; *'Both critical and creative thinking are needed to deal with the issues and the problems facing the world today'.* More recent reflection has taught me that it is possible and necessary to go further, because the most important element of learning derives from the students themselves. Shuell (1986) puts it succinctly, when outlining the crucial importance of active learning; *'... what the student does is actually more important in determining what is learned than what the teacher does'.* Thus, if students are to be engaged as partners in the educational process, they must be involved as active participants in the classroom. This involves techniques such as group discussions, brainstorming sessions, and student presentations.

So in summer 2003, this is where I am at. A lecturer, with origins in professional accounting, whose teaching has been shaped by the demands of academia, and who has latterly become a staunch proponent of active student learning. Aided by constructive reflection, my teaching practice has evolved over time in a way that has hopefully been beneficial for my students. I am conscious however that each year brings fresh challenges, and most pressing amongst these is the fact that my assessment methods have failed to keep pace with other changes in my teaching. As research has shown that students will study what they expect will be examined, it is clear that assessments which I set in the future will have to have increased emphasis on problem solving, on critical and creative thinking, and on rewarding students' participation in active learning.

Like the tourist's wood carving, teaching continues to provide me with as many questions as answers. Yet, with the benefit of reflection I have solved some problems, and I am at least aware of the existence of others. Like the mystical wood-carving master, the task of shaping students' minds continues to be the greatest challenge. Erasing preconceptions, the nurturing of enquiring minds, and fostering a love of learning – these comprise the baton of knowledge that the teacher must aspire to pass on.

Thus far I have enjoyed the journey – the odyssey of struggle, enlightenment, and learning that is teaching. Let the great adventure continue ...

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# CHAPTER 6

## USE OF LEARNING OUTCOMES IN THE TEACHING OF ECOTOXICOLOGY: A PERSONAL REFLECTION

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### Background

One of the major threats to animals, plants and humans is pollution. Pollution occurs at local, regional, national and global scales and affects organisms in a number of ways. In some cases, organisms are able to respond and adapt to a polluted environment (e.g. through natural selection) in other cases they get eliminated and become extinct. This leads to a decline in biodiversity at the relevant scale, with potential effects on ecosystem functioning. In order to understand these processes we must be able to understand the causes and consequences of pollution and examine approaches to monitoring and remediation. The study of ecotoxicology (Figure 1) goes some way towards trying to understand these processes and looks at the impact of pollution at several levels of biological organization from cell to tissue, to physiology, to organ, to individual, to community, to population.

When I was appointed to UCC in 1989, it appeared to me that a course should be developed to provide a deeper understanding of pollution and ecology, or to put it another way, a deeper understanding of Ecology and toxicology or Ecotoxicology. The process began in 1991 and continues to this today.

Ecotoxicology is taught as two modules (AE3010 and AE4010) to third and fourth year science students at UCC. It is an integrated course and the motivations for adopting the learning outcome model(s) was the same for both modules and is set out below. Before considering the details of one of the courses it is worth defining learning outcomes. I will then proceed to consider my third year module by way of illustration.

### What are learning outcomes?

The idea of learning outcomes is not new and has been used in a number of courses in science, for example in Physics, (Castelli, 2003), electrical engineering, (Houghton, 2002), commerce (Medlin et al. 2003) and other areas of higher education (Lizzio et al 2002). The idea is that when designing course content, instead of grouping a series of academic topics together, we focus instead on what we want our students to know at the end of the course. The learning outcome approach is about rethinking the curriculum, the mode of instruction and assessment (Centre for Curriculum, Transfer and Technology 2003). The learning outcomes are designed to make explicit the implicit expertise of experienced practitioners. The approach is to identify the essential integrated abilities associated with a professional area and then work backwards. The learning outcomes then are matched to the type and mode of assessments to ensure that these have been achieved during the course.

**Why did I adopt this approach?**

My ecotoxicology course was originally designed as AE353 an Introduction to Pathology and Ecotoxicology (UCC Calendar p394-395 in 1991/1992). The format of the course was mostly lectures with some practical and fieldwork. Student feedback highlighted a number of strengths and weaknesses in the course. The use of videos, field trip and practicals was broadly welcomed, but students felt that the timing (sequential) and the duration of time available in the class was not enough. This caused frustration in that there was a gap in time between the subjects covered in lectures and insufficeient time to complete the practicals. Some of the topics and issues considered were too advanced for 3rd year students (or not communicated by me in a way to help them learn). Coupled with this, I had not fully defined and communicated my expectations as to what I wanted the students to know (i.e. learning outcomes). Although I had precise ideas in my head as to what I wanted the students to know, I never told them! The result was a good course, but one that I felt could be improved. Accordingly, I undertook a complete review of the modules in 1998 and completed the new course structure about a year later. The course objectives, course materials, lectures, practicals were all evaluated and a new course developed into a new exciting opportunity for learning.

**Defining learning outcomes in ecotoxicology**

The learning outcomes I defined for third year ecotoxicology are directly linked to the objectives, modes of teaching and the assessment types of the module. The broad objectives of my 3rd year ecotoxicology course are

1    to introduce an understanding of the ecology of pollutants and their effects on organisms
2    to investigate the effects of pollutants at different levels of organization
     (i.e. from cell to ecosystem)
3    to consider some examples of aquatic pollution and to present some solutions

**Learning outcomes for 3rd year ecotoxicology**

At the end of this module, students should be able to
1.   **identify** the major types of aquatic pollutants;
2.   **explain** how pollutants get into and move around ecosystems;
3.   **understand** the effects of pollutants at different levels of organization;
4.   **design** an experiment to test the effects of aquatic pollutants;
5.   **conduct** a pollution based experiment to assess toxicity;
6.   **write** a scientific paper on a pollution topic;
7.   **maintain** a good scientific record in a practical notebook;
8.   **distinguish** between pollutants that are toxic and those that change the physical environment;
9.   **list** the treatment options for organic waste;
10.  **identify** the major causes and consequence of aquatic pollution in Ireland;
11.  **critically** evaluate the causes and consequence of pollution;
12.  **interpret** water quality standards;
13.  **use** data to understand EC50 in toxicity assessment;
14.  **communicate** in written form and orally;

**Delivering on the learning outcomes**

In order to deliver on the learning outcomes the course materials, the modes and diversity of teaching methods and assessment had to be completely reviewed in order that student learning was harmonized with learning outcomes and these are described below.

**Revision of course materials**

I undertook a complete review of the module(s) to ensure that all the topics I wish students to understand and learn about were contained in the curriculum and matched my expectations regarding learning outcomes. I provided a tentative lecture list, cross-referencing the lectures to the relevant chapter(s) of my recommended textbook. I clearly outlined the modes of delivery of course material, assessment and its value. All lectures were presented in Power Point Presentations and the students were given a copy of the presentations. New practicals were designed which focused on the non-formative elements of assessment and these were matched with learning outcomes. A practical schedule was also provided and each practical session was detailed in a handout. One change to the practicals was the introduction of study questions. The study questions were short questions to enable students to focus on a deeper understanding and application of the practical materials. Feedback suggested that the students found this approach very valuable. Reading lists were also provided with details of ecotoxicology related books and available scientific papers.

**Teaching methods and approaches**

I adapted my teaching methods to empower students and help them to achieve the module learning outcomes (e.g. increased dialogue in class to achieve learning outcome 14). Teaching methods were developed and adapted as follows:

◆ My lectures became interactive (I learned the student names from photos and I engaged with them fully in class). The approach I used was to enter into 'contract' with the students, whereby I agreed to provide the Power Point lectures, if they agreed to full participation in class;
◆ I converted all my lectures to Power Point Presentations and I used colour and good field examples to display pollution/ecotoxicological impacts;
◆ I used videos to demonstrate water treatment and water quality assessment;
◆ I developed practical classes to hone laboratory skills to advance their understanding of the scientific method;
◆ I required students to keep a laboratory notebook that is their record (or portfolio) of the laboratory exercises;
◆ I used a guide to scientific writing as a guide in the preparation and drafting of a scientific paper;
◆ I provided the opportunity for individual discussion with students after class;
◆ In all cases I linked my research to the classes through the use of data and examples from our own cutting-edge research.

**Assessment: modes and diversity**

Assessment (method, type and frequency) 'close the circle' on learning outcomes and student learning. Because of the diversity of modes of teaching I used, I was able to assess the modules in

a number of ways. At the beginning of the module I clearly outlined the assessment regime: the elements involved and the time deadlines. The methods of assessment were carefully matched to the learning outcomes. For example, in order to achieve competency in learning outcome (7) –to maintain a good scientific record in a practical notebook, I collected student notebooks twice during the module. After the first collection, I gave the students feedback (without grading). The second collection was used for assessment and to see whether they had achieved competency in the learning outcome. Other assessment types used were a laboratory report, practical write-up, scientific paper drafts, oral presentation and end of year summer exam

## Has the learning outcome model worked?

In order for me to assess whether the learning outcome model has worked, I have adopted a model used in ecotoxicology. This model is used to analyze environmental impacts by the EPA and by the European Commission for measuring sustainability: it is called the DPSIR model (European Environment Agency 2000). An example of this Model in pollution assessment is set out in Figure 2.

It should be stated at the outset that this model has not been used in this context before, but it provided a very useful framework for me to reflect on my teaching and on the use of learning outcomes. I have used this model to help me to measure the effects, if any, of introduction of the learning outcomes approach and to provide an opportunity to assess my teaching. The idea here is that any system, which requires improvement or monitoring should measure the Drivers, Pressures, the State, Impacts and Responses or corrective actions in order to meet or reduce the drivers. The key point here is that we can measure the various compartments and conceptualize the teaching and scholarly pursuit.

### 'The drivers' for me in this context are:

◆ My desire for excellence in teaching and learning;
◆ Demand by Government and Society for quality teaching and learning;
◆ My wish to advance in scholarship;
◆ To meet the demand by students for excellence in teaching and learning;;
◆ To help students to learn not just take notes but to engage in the full scholarship of learning;

The pressures for me in this context are:.
This process forced me to think more broadly about what I wanted to achieve, as a teacher, how I would do it and how I might engage students in the scholarship of teaching and learning.

### 'The state' of my modules

My teaching schedules, lectures and materials for classes were better than before the introduction of learning outcomes. I discovered I was more focused and better prepared for classes and willing to explore scholarship of learning more fully in class.

### The impacts

The positive impacts of introducing learning outcomes have been dramatic for myself and my students. The learning outcome approach has helped me to be more considered in my curriculum

development, more explicit about my expectations regarding what I want the students to know and how I intend to assess them (by linking the assessments to the learning outcomes). The students have responded well and attained competency in the expected outcomes.

**The responses**

The responses are a measure of the corrective steps taken to reduce the drivers. The responses (in this case the introduction of the learning outcomes), which have impacted most notably on the students, are a reduction in formative assessment, an increase in feedback on learning, the development of identifiable skills and expertise. The responses for me have been the introduction of the learning outcomes and the development of a framework for me to reflect more fully on my teaching.

**Conclusion**

In conclusion, I feel that the introduction of the learning outcome approach has increased my effectiveness in delivering on my teaching objectives. It has also helped me to focus on the key skills that I want my students to acquire. When I first started to engage with practitioners about the learning outcome approach, I was concerned that defining learning outcomes was too limiting and may inhibit students from excelling. I was mistaken. In fact, I have discovered that the development of learning outcomes has not only helped me to be more explicit about my expectations of students, but also has enabled my students to understand and learn more deeply, than they might other wise do. It also provides an opportunity for innovation, creativity in teaching and learning. In the same way, the DPSIR framework has enabled me to monitor my teaching and learning in a way that will permit me to review my learning outcomes in my objective to achieve excellence in teaching and learning.

**Acknowledgments**

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**Figure 1** The ecotoxicology triangle provides a useful framework to link different elements of study in environmental science
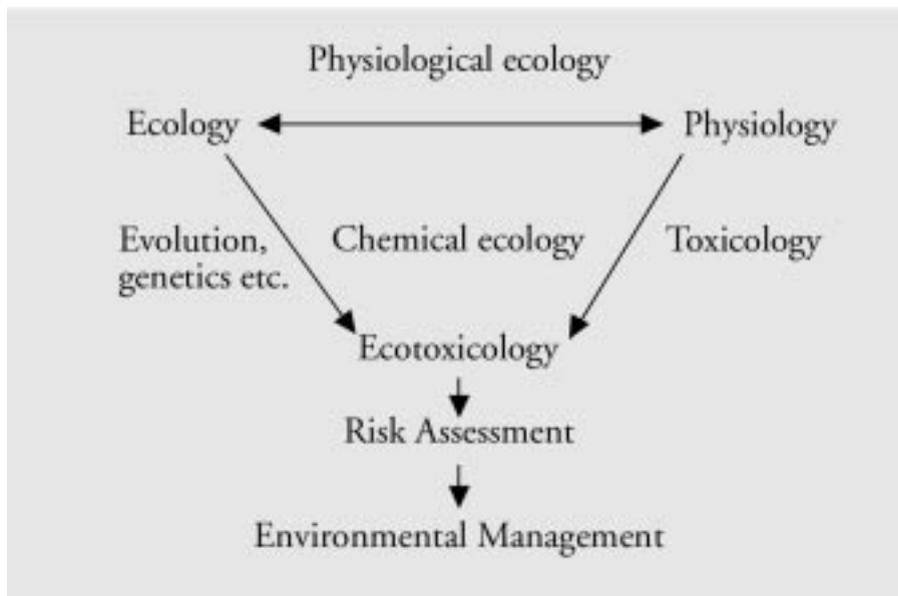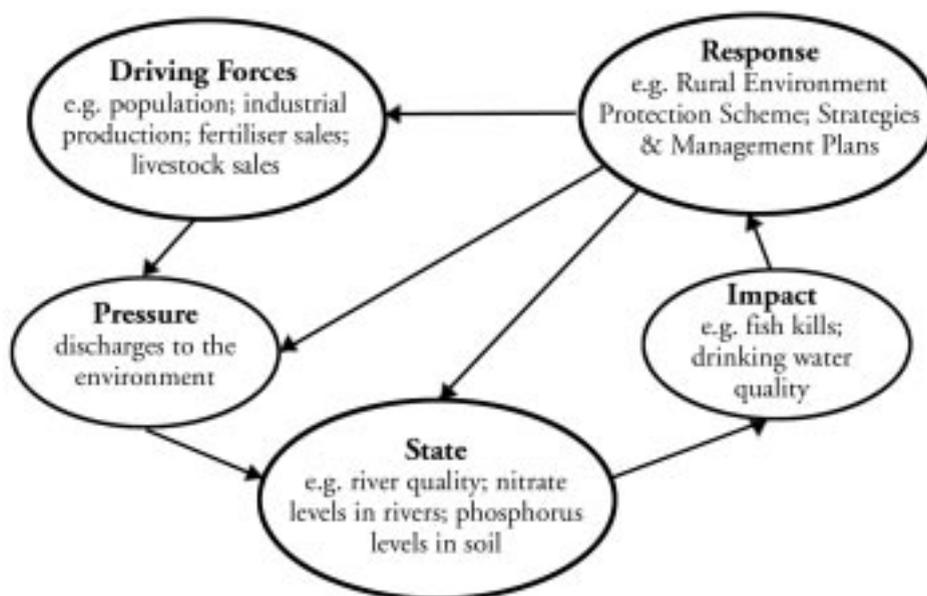


**Figure 2** An example of the DPSIR Framework for the impact of aquatic pollution: eutrophication. {The idea is that the pollution is driven by something, creates pressure, effects the state of the environment has an impact and requires some response or remediation}

# CHAPTER 7

## INNOVATIONS IN TEACHING LEARNING AND ASSESSMENT: TASK BASED LEARNING FOR OCCUPATIONAL THERAPY

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### Introduction

Contemporary literature on health science education has espoused two different approaches. One approach exhorts inter-disciplinary learning for all health science students, including medical students, during the foundation years, while the other approach advocates particular ways of learning that match specifically the actual end-point knowledge and skills that will be required of a graduating practitioner (Amort-Larson, Esmail, Chan, 1997; Higgs and Edwards, 1999). It is our contention that with careful curriculum design the two approaches can be incorporated, at least to a certain extent. The newly designed occupational therapy programme at UCC has attempted this marriage. The basic sciences, biological and behavioural, will be delivered through shared inter-disciplinary learning. However, the focus of this paper will be on the second approach where task-based learning is being used to foster the capabilities that are deemed specific to becoming an effective occupational therapist.

### Occupational Therapy

Occupational therapists work with everyday occupations across all age groups, celebrating and facilitating abilities and working with those who need additional input in order to perform normal everyday activities. They practise across a wide variety of settings. Some of their work is with vulnerable groups of people who may be at critical points in their life like becoming homeless or retired, being imprisoned, or losing their ability to work. Others may be medically compromised following strokes and heart attacks or suffering from degenerative conditions and this last group may have lost their former abilities completely. Occupational therapists also work with children who have developmental and social / behavioural problems. To be successful therapists they need to combine their theory with the everyday world and be alert to their surroundings, the social, political, economic and physical environments. Task-based learning incorporates all these elements.

### Task Based Learning [TBL]

Task based learning [TBL] has been derived from problem based learning [PBL] and, because of this, it shares many inherent features like facilitating inductive thought, creative thinking, problem-solving, critical consideration and reflection. The choice of TBL for facilitating the occupational therapy students' learning in the new UCC course will be directed at the two occupationally oriented modules that run throughout the four years. Task-based learning has been chosen as a result of recent research studies that examined PBL (Savin-Baden, 2000; Ryan, 1990, 2003) and found that the addition of other learning elements and the recognition of other knowledges could enhance the competence of graduating occupational therapists. To date TBL has been used in

Canada and New Zealand. It has not been researched or published and so, the staff at UCC plan to work with the Department of Education at UCC so that master's and doctoral students in that department could research the educational effectiveness of the programme as it develops.

Task Based Learning involves contextual experiences and so is not only cognitive. It involves an element of practicality and it happens in a realistic setting thus promoting situated learning. Partial closure occurs through a feedback loop in the later stages in the module design. It is expected that these learning methods will assist the future therapists to internalise the processes of evaluating a phenomenon / service, a skill needed for future practice in areas where Occupational Therapy is not normally practised. This ability is especially crucial for the development of the profession in Ireland. As demand for services increase, therapists will constantly be in this formative situation for several years to come. The following section illustrates the processes that are followed when designing a module using TBL.

**Designing a TBL module**

Findings from the studies above and the body of clinical reasoning literature in the health sciences (Higgs and Jones, 1995, 2000: Higgs and Titchen, 2000, 2001a, 2001b) suggest the following processes should be followed when designing a TBL module.

**Table 1: Task based learning matrix**

This matrix should be used before the TBL module is designed in order to prompt the leader and to make sure the main contents are considered.

| MAIN FOCI OF MODULE | ADJUNCTIVE FOCI |
|---|---|
| Knowledge for this module<br>Practical skills to be acquired<br>Possible ideas for task / experience<br>Possible ideas for suitable assignment(s)<br>or that will capture the essence of the module<br>Readings | Anatomical / biological sciences<br>Behavioural sciences for this module<br>Research experiences<br>Reflective experiences (in TBL in assignment)<br><br>Relevant legislation |

**Table 2: Task based learning processes**

**INTRODUCING THE TASK** (visualisation & problematisation)
- The learners need to see or visualise the situation,
- The students need to be aware of some of the issues (ethical, moral) in this given situation
- The students with little experience need to "be in the situation" and to experience the reality of the phenomenon being studied – to see it visually in order to understand,
- The learners need to examine what they know already from a variety of sources,
- The learners need to have some basic skills / preparation before an actual encounter.

**PREPARATION & EXECUTION OF TASK** (experiential / experimentation)
- The learners need to prepare and plan what they need to know (legislation, service

organisation etc,) what they are going to do / who they should contact,
- ◆ They might decide to investigate literature, make phone calls etc.,
- ◆ The students carry out the task / encounter / (observation, discussion, analysis, re-testing ideas, interviews, etc.)

**DISSEMINATION AND FEEDBACK** (prospective reflection for the learner)
- ◆ The learners need to tell / share what they have seen or done and get feedback,
- ◆ They need to reflect on the process to see what could have been done differently – do they need to go back – gather more information – repeat something with someone else,
- ◆ The students should present their findings in different ways to get formative feedback.

**EVALUATION & CRITICAL DISCUSSION** (Retrospective reflection)
- ◆ The work needs to be evaluated by peers and staff in order to derive a sense of accomplishment or otherwise,
- ◆ Other ways of tackling a similar situation should be discussed.

**SUMMATION OF LEARNING** (Chunking and clustering information)
- ◆ Some summative work needs to close this chapter of learning (writing reflectively, creating a display, presenting formally, making an album, designing material for a department – an assignment).
- ◆ The work needs to be assessed by self and staff,
- ◆ Feedback should be given in writing and verbally if necessary.

**Table 3: Task based learning module design**

| Prior to planning | ◆ Be clear about the level of the learner<br>◆ Design a matrix to see if you are covering all the learning criteria (knowledge and understanding, analysis, synthesis/creativity, evaluation, interactive group skills, self-appraisal & reflection,planning & management, problem solving, communication & presentation, practical motor skills) |
|---|---|
| Decide on the overall contents of the module and your ideas | ◆ What do you want them to know?<br>◆ What do you want them to do?<br>◆ What must you have prepared?<br>◆ What OT skills do they need?<br>◆ What transferable skills are you promoting?<br>◆ Will you give them some preparation work before the module starts? |
| Ways of working during the module | ◆ Will they work individually or in groups?<br>◆ Are there ethical issues to consider / discuss?<br>◆ Have you written all your instructions in a module booklet so everything is explicit and clear?<br>◆ Have you checked the inter-personal skills they will need? |

| | |
|---|---|
| | ◆ Have you given clear instructions in writing?<br>◆ Do you want them to do anything before they start – formal searches? |
| Prepare the module booklet | ◆ Be clear about the time and hours expected for each part of the task,<br>◆ Contact time – overall time – assessment time,<br>◆ Task-based time,<br>◆ Discussion time afterwards & methods,<br>◆ Tutorial time and who to contact,<br>◆ Study / further exploration time,<br>◆ Writing or preparation time. |
| On completion of task | ◆ How will you help them "put it all together"?<br>◆ How will they articulate what they have done/seen?<br>◆ How will this work be critiqued? (critical thinking)<br>◆ Do they search for any EBP?<br>◆ How will they keep this for future reference (portfolio)? – a record – certificate |
| Assessment / outcomes | ◆ What will the final product be?<br>◆ Do they need any formative feedback for this work?<br>◆ How will it be assessed?<br>◆ Does this fit in with the overall assessment mapping?<br>◆ How will you evaluate the outcome to improve it next time?<br>◆ How will you collate the results (pie chart – graphs)<br>◆ Will these findings be disseminated at staff meetings, away days, student presentations, displays? |
| Self-evaluation of overall performance | ◆ How will you organise this/ Think in terms of research methods to illustrate the responses |

**An example of TBL in action**

**Theme for Week: Pleasure in Occupational Experiences**

**Background**
Occupational therapists study how an occupation is experienced by an individual in terms of the degree of productivity, pleasure and restoration he or she feels during engagement in that occupation. This week's session focuses on *pleasure* in occupational experiences.

**Friday Lead Session (3 hours) – Introduction of theme and task**
**1. Introduction to** *Pleasure in Occupational Experiences*

**2. Students will complete an** *Interest Checklist* **(OT clinical tool) in class.**

- Pair and share responses with class member.
- Whole group discussion on popular leisure interests among group.
- Why does the group find these activities pleasurable?
- What influences interest and participation in pleasurable activities?

**3. In class visualisation –**

- what would you do if you won the lottery?
- Can you do some of these pleasurable activities without winning?
- What are the barriers to your participation in pleasurable activities?

**4. Present task for week: working in four small groups**
Groups of 6 -7 students:

- Class will devise a Directory of Pleasure Possibilities, exploring resources
  in the community around UCC.
- Groups will look at possibilities for children, young people, adults and elderly.
- Case vignettes submitted by local clinicians will act as triggers.
- Brainstorm task preparation ideas, possible sources of information.
- Class will construct a template for compiling information.

**5. Class to carry out task on Monday and Tuesday of following week**
Students carry out task, going out to the community.

- Work together to produce a hard copy directory for use by clinicians.
- Create a visual display.

(N.B. Eleven hours guideline given for completion of task per week. Note that this task is designed to run over two weeks)

**6. Thursday Feedback Session (3 hours)**
The class is divided into 2 groups for feedback, processing of experiences and integration of learning. Each group is facilitated by a lecturer in a separate classroom.

For the last hour, the groups come together into the one classroom for a round-up.
Relevant theoretical concepts associated with their task are tied in at this point:

- Defining leisure
- Leisure interest and participation
- Barriers to participation in pleasurable occupations
- Pleasurable occupations, health and well-being

Links are made to applying this knowledge in Occupational Therapy practice.

**Learning outcomes**
Knowledge gained
Leisure defined
Leisure interest and participation
Barriers to participation in pleasurable occupations
Pleasurable occupations, health and well-being
Knowledge of community resources

**Skills**
Information gathering
Presentation skills
Use of clinical tools
Communication skills
Group work skills
Organisational skills – time management

**Other advantages of task based learning**

Staff who work with TBL must be intimately knowledgeable about the subject matter covered but this would be no different if lectures were being prepared. They must also be aware of the learning outcomes they wish the students to acquire. The planning of a TBL module takes time as this broad picture has to be kept in mind and has to be integrated with academic requirements. From the Tables above it is evident that there is great room for creative scope on the part of the lecturer and there is tremendous and exciting choice for the students who feel they are contributing to an actual need. At UCC we work with practising occupational therapists and so we can design the module so that the students research information that the busy local therapists are not able to do. These therapists will be invited to participate in the assessments of the final presentations thus promoting the knowledge that is generated through many different avenues.

Another advantage of TBL is time. At UCC we have planned the timetable so that the introductory sessions and the feedback sessions run back to back on Fridays and Thursdays. This allows time for the students to carry out their task but it also allows time for the staff to do other work such as research.

**Conclusion**

The staff in the department of occupational therapy are convinced that these adjustments will assist the integration of theory and practice. It will give a programme that encourages continued skills that are needed by an occupational therapist. Working on these tasks and ancillary professional behaviours during the semester frees time for the students to concentrate on learning core therapy skills in their 1200 hours on placements. Planned research studies and evaluations will add to the quality requirements of this type of learning at UCC.

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# CHAPTER 8

## DESIGNING AND IMPLEMENTING A MODULE
## ON PROBLEM SOLVING IN MATHEMATICS

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### 1. Why we felt the need to introduce this course

The module *MA2053: Mathematical Experimentation and Problem Solving*, taught for the first time in the Academic Year 1998/1999, was developed at the time when the Department of Mathematics revamped its Honours Mathematics Undergraduate Programme, coinciding with the introduction of modularisation. Our existing undergraduate programme did not properly address the need for fostering the team working, the problem solving and the presentation skills of our students. The emphasis in our degree had been changing from the purely academic (focused on those students who would pursue a doctorate degree and perhaps a position within third-level education) to one which took into account the much wider employment opportunities for mathematicians afforded by the developing and more sophisticated Irish economy, in particular in the financial services and the software industry.

In particular, some of us in the department felt that a defining attribute of a mathematician is the ability to formulate and to solve problems. While this aspect of Mathematics was well represented outside the curriculum (for example by the Saturday morning Enrichment Classes organised by Finbarr Holland and by the Superbrain competition organised by the student Mathematical Society in collaboration with Des MacHale), nowhere in our degree programme was it to the forefront. Furthermore, we felt that a certain stereotypical image of a Mathematics student, as one who is very clever but socially inadequate and who lacks the ability to communicate with non-specialists, was not being challenged. We therefore identified the need for a proactive forum in which students could develop and display their communication skills. In the current employment market these skills are almost expected, and certainly highly valuable, attributes of a graduate. In an article in *The Irish Times* on 2 April 2003, entitled *The importance of education functioning as a continuum*, the IDA Chief Executive, Mr Séan Dorgan, is quoted as saying that he is 'frequently told by employers that they are seeking students with good communication skills, ability to work in teams and capacity to use knowledge to resolve problems'. We felt that it would be important for our students to have demonstrable evidence of their skills in this area and that the incorporation of a new course containing the appropriate components of experimentation, of problem solving, of team work and of written and oral presentation would provide such evidence.

MA2053 was to be one of two initiatives in this direction, the second being the introduction of a fourth year project. While the project was conceived along standard lines – a five credit supervised research project, including a presentation by the student – *Mathematical Experimentation and Problem Solving* was to be much more innovative in its use of teaching methods and teaching aids.

The introduction of MA2053 came shortly after a very positive teaching experience with the MA

in Curriculum Studies (Mathematics) for Secondary School teachers, which the Mathematics Department, in collaboration with the Education Department, ran from 1995 to 1997 (and another cycle is in train in 2003/2005). This course was specifically designed for secondary school teachers of Mathematics, as a refresher and enrichment course. One of its explicit goals was to awaken teachers to the possibilities of using the computer in the classroom or in their class preparation. While some of the teachers were initially sceptical, if not even afraid of coming to grips with this new technology, the computing element of the course was entirely successful, so much so that we were sure that a similar success would be possible with a younger generation of students. The course teaching team for MA2053, all of whom were also deeply involved with the MA in Curriculum Studies, brought this successful experience, as well as their conviction of the importance of computer skills for graduates, to the design phase of MA2053.

## 2. Who takes this course?

MA2053 is one of the six compulsory five credit courses that make up the second year Honours Mathematics programme. It is taught entirely in Period 1 (October to Christmas) and so forms part of the first suite of courses taken by those students who choose Mathematics at the end of their First Year. In the Science Faculty, Mathematics may be chosen for Joint Honours degree programmes with Applied Mathematics, Statistics, Physics or Computer Science. Up to the introduction of the new Mathematical Sciences entry stream CK407 in 2002, students came from the First Science CK403 entry stream. In the Arts Faculty, Mathematics may be chosen for Joint Honours degree programmes with a number of subjects, the most common being Philosophy and Economics, with Music, Geography and English being examples of other student choices in recent years. The difficulties that need to be overcome to cater for the diverse backgrounds of students will be addressed later.

The course is restricted to students who choose Mathematics as a subject for their degree, and is not available as an option to students outside Mathematics. Typically, between 12 and 15 students take this course each year.

## 3. Objectives of the course

The objectives of the course are:

*1. To develop the problem formulation and problem solving skills of the students*
Mathematical graduates generally work on solving problems of varying nature which are frequently open-ended and ill posed. Regular mathematics courses, however, are concerned with students acquiring mathematical knowledge and skills and solving problems which are well defined and of a technical nature. A primary objective of MA2053 is to expose students to problem solving situations which are similar to those they will encounter in their work after graduation. Furthermore, the experience gained at problem solving benefits students in their regular courses and gives them an appreciation of the benefit of the Mathematics they learn in regular courses.

*2. To encourage students to work together to solve mathematical problems and to discuss mathematics together*

Almost half of the Mathematical research papers that are published are the fruit of collaborative efforts. Yet our lecture courses are constructed in terms of a contract between the lecturer and each individual student. The teamwork and the informal nature and laboratory format of MA2053 have a twofold purpose: to encourage students to do mathematics together, and to bond the students together as a group. This is important in establishing a strong sense of class identity as a support framework for the students as they face into the more advanced and demanding stages of their undergraduate degrees.

*3. To foster the writing and exposition skills and the public speaking/presentation skills of the students*
The writing and exposition skills of university students appear to need more explicit attention that they currently receive, and this is as true of Science students as it is of Arts students, perhaps even more so. In their working lives they will need to explain their mathematical/technical solutions of problems to non-specialists. The objective is to provide a forum in which the students can develop their skills in conveying the essence of their technical work in an allocated time slot and to a public audience.

*4. To stimulate students to use mathematical computer packages as a mathematical tool and as a means of visualizing problems*
Computer packages specifically designed to do mathematics have become a standard tool in the arsenal of a mathematician. They are ever more widely used and can, in many cases, take some of the drudgery out of doing mathematics, as they can be used to test conjectures and examine specific examples quite quickly. It is vitally important that our undergraduates have targeted training in the use of these tools. The clear benefits of including a computer component in the curriculum have recently been verified scientifically by Laurel A. Cooley[1]. The author carried out an experiment in which two sections of Calculus were taught using the same materials, except that one section was enhanced with a computer algebra system, *Mathematica*. The results indicated that the students in the technology group had advantages in understanding certain key topics.

## 4. The course teaching team

The course is team-taught by Tom Carroll, Donal Hurley (Course Coordinator for the year 2002/3) and Des MacHale. The course teaching team has remained unchanged since its introduction, except for the academic year 2000/2001, when Tom Carroll was on sabbatical leave and was replaced by Tony Seda. The role of Course Coordinator is not fixed; for instance, Tony Seda coordinated the course in 2000/2001 and Tom Carroll in 2001/2002.

MA2053 is taught on a voluntary basis. In other words, while it is a compulsory course for Honours Mathematics students, it is taught over and above the formal teaching assignments of the lecturers involved. Each teaching team member chooses to lecture on MA2053 because he is committed to the philosophy and to the aims that underlie the course.

## 5. Development of the course structure

When the course was conceived, we needed to formulate a structure that would allow us and the students to achieve the multiform and diverse goals that we had set. Because this was a new course, never before taught in our university, we began by researching what others had done in this field, and by looking at the programmes of other Irish universities. When it became clear that nothing

remotely similar was on offer in the island, we looked at foreign institutions. We found a few courses that were based on similar principles. The most relevant course of this type had been offered at Mount Holyoke College. Our colleague Pat Fitzpatrick, when visiting that college on sabbatical leave, taught on this course, and we had the opportunity to discuss his experience with him. The teaching team at Mount Holyoke College prepared a book[2], which we read with great interest. The book was structured as a chapter-by-chapter and in-depth exposition of topics suitable for student mathematical experimentation; however, no explicit attention was devoted to exposition or to presentations – two aspects on which we instead placed much weight. More importantly, we felt that the topics were somewhat elementary for our own students. The students who would take MA2053 would be but one year from Leaving Certificate Mathematics, and would have a very narrow view of Mathematics – essentially Calculus and Abstract Algebra. We therefore wished to expose them to the wide range of applicability of problem solving techniques and the use of the computer within Mathematics at a level appropriate for them.

The other component that shaped our thinking was the ongoing and at times fierce debate in the United States on how to teach Calculus. This debate was driven by a number of academics with quite radical views (for example, Dubinsky at Purdue University and R.G. Douglas at SUNY Stony Brook), all of whom advocated an experimental/problem-solving approach to the teaching of Calculus, rather than the classical 'here is how you do it' method. The essential idea underlying this philosophy was that students would 'discover' Calculus for themselves, in some cases with the help of computer technology. The National Science Foundation (NSF) provided major funding for the development of alternative approaches to Calculus teaching at that time, and the Notices of the American Mathematical Society, distributed world-wide to all its members, published innumerable letters on these matters, from both sides of the debate. The Mathematical Association of America published three books that we read with particular interest: Alan H. Schoenfeld, *Problem Solving in the Mathematics Curriculum. A Report, Recommendations*, and *An Annotated Bibliography*[3]; Lynn A. Steen (ed.), *Calculus for a New Century. A Pump, Not a Filter*[4]; David A. Smith et al. (eds.), *Computers and Mathematics. The Use of Computers in Undergraduate Instruction*[5]. These books have become the basic references about Mathematics teaching, certainly in the U.S.A. *Calculus for a New Century,* in particular, containing as it does up to fifty articles on all aspects of the teaching of Calculus, has become a classic in its field.

These new approaches, involving more active student participation, were welcomed by many of us and were incorporated to varying degrees in our own courses, for example by modifying the classical theorem/proof approach to incorporate greater motivation of mathematical theory through the study of explicit and important examples by the students, as well as by placing greater emphasis on continuous assessment. On the other hand, we felt that MA2053, with its experimental ethos and its student-learning orientation, was an unfettered opportunity to test the new teaching methods and to exploit their full potential.

Building on what we had read and learned, we therefore set out to develop our own course. We divided the course into an introductory lecture and three sections, each made up of seven contact hours, taught at a rate of two hours per week. Sections 1-A and 1-B would run roughly in parallel, followed by Section 2.

**The introductory lecture**
The introductory lecture, held by the entire teaching team, was envisaged as an opportunity to

give the students a printed information sheet; to explain the objectives and the structure of the course; to introduce each lecturer and clarify his contribution to the course; and to answer questions from the students.

## Section 1-A: problem solving (weeks 2-8)

Section 1-A of the course, on various aspects of problem solving and, indeed, of problem posing, would be entirely taught by Des MacHale, who has a long-standing academic interest in the promotion of problem solving skills[6]. This section would comprise seven sessions, one hour per week, and constitute the theoretical framework of the course and the basis on which to build the participation of the students; for this reason, his were to be standard lectures in a classroom setting.

Initially, the class would examine problem solving in general, mostly outside of mathematics, involving such techniques as lateral thinking, solution visualization, inventiveness and inventions, ingenuity and other techniques, drawing heavily from History, Science, Engineering and many other areas of life. Within Mathematics, the class would concentrate on induction, divide and conquer techniques, analogy, discussing in particular methods used by great mathematicians such as Archimedes, Euclid, Euler, Gauss, Newton and others. The section on Problem Creation, which would involve showing the students how to create and solve their own problems in Number Theory, Algebra, Combinatorics and Geometry, would be a unique feature of the course. There would be an emphasis on the beauty of solutions throughout, and students would be encouraged to find as many techniques as possible for solving a given problem and to assess the merits of different methods of solution.

At the beginning of his lectures, Des MacHale would encourage students to come up with their own project or to select one from a list of pre-prepared topics. Des MacHale has considerable experience at producing problems that are non-standard yet suitable for attack by students. This would build the students' confidence, as they would immediately begin to make progress, but also their interest, as they would be doing research, sometimes even on unsolved problems.

It was decided that the other two sections of the course would be taught jointly by Tom Carroll and Donal Hurley, who would alternate in their contact with students to encourage them to put into practice what they learned in a general setting from Des MacHale.

## Section 1-B: *Mathematica* and beginning experimentation (weeks 1-7)

The seven contact hours of Section 1-B would be held in a more experimental environment, the computer laboratory. The first, instrumental objective of these seven hours would be to introduce students to the basics of the mathematical programme *Mathematica* through a mix of worksheets and lecturing. The emphasis would be on numerical computation, production of graphical output and interpretation of results. The students would already have been exposed to Computer Algebra Systems (CAS), and particularly to the computer package *Derive*, in the compulsory First Year Calculus course, MA1005. *Mathematica* is significantly more sophisticated than *Derive* and so there would be a natural development of the students' use of the computer. Because of the risk that during the computer laboratory hours students could end up spending more time grappling with *Mathematica* than engaging with problem solving, the worksheets would be designed to develop both of these aspects in a complementary way.

The true objective of this section of the course would be to encourage students to begin to solve

problems and think analytically, but in a relatively risk-free setting, since none of the problems in the worksheets would be excessively challenging and impervious, although a progression of difficulty would be built in. It was expected that all students would enjoy a sense of achievement during this phase, and continue to develop confidence that would stand them in good stead during the course's last phase of independent work.

In preparation for the final section of the course, it was envisaged that the students would form teams at this time. How exactly this would materialize, whether it would be a natural process or one that would require significant intervention on the part of the lecturers was not immediately predictable. The main decision that we made in this regard is that three members per team would be our ideal size, two being somewhat small and overly susceptible to clashes of character and in a team of four it would be too easy for one member to be sidelined by the others.

### Section 2: team work (weeks 8-11)

During this phase, once again held in the computer laboratory (two hours per week), the students would work in teams. Firstly, each team would receive two Investigation Lists, sets of suitable open-ended problems, one from Tom Carroll and one from Donal Hurley. The topics for investigation would lead on naturally from the work carried out in Section 1-B. Initially, the students would spend some time thinking about each of the problems and discussing them with the supervisors. Then, from each set of possible topics, each team would need to choose two projects, one led by Tom Carroll and one by Donal Hurley. The teams would then carry forward both projects simultaneously, under the supervision of the two lecturers, who would alternate in the laboratory in the role of advisors. Each team would then formally present to the class one project of their choice in the last week of term.

### The presentations (last week of term)

We decided without hesitation to restrict the attendance at the presentations to the class itself and to the course teaching team. We knew that a number of our colleagues would express an interest in being present (which they did), but it was our view that, while this could sometimes be beneficial, it was more important to guarantee a comfortable and in no way intimidating environment for the students, some of whom might be quite nervous. The target audience would be the rest of the class and part of the assessment would be based on how accessible to this audience we would perceive the presentation to be.

We agreed that each team should make a coherent presentation, with the internal organisation left to the team itself. Teams would nevertheless be encouraged to divide their allocated time equally between members and to use laptops as part of the presentation. At the end of each presentation there would be a five minute question period.

### 6. The assessment of the course and what is expected of students

Students are assessed on three written reports, and one oral presentation. Each component is worth 25% of the module marks (for a total of five credits). These are:

| | |
|---|---|
| Report on Project supervised by Tom Carroll | 25% |
| Report on Project supervised by Donal Hurley | 25% |
| Report on Project supervised by Des MacHale | 5% |
| Team presentation of Project | 25% |

Work is due from the students at the following times:

| End of Period 1 | First Report (supervised by Des MacHale)<br>Team presentations |
| --- | --- |
| Mid January | Second Report (supervised by Tom Carroll or Donal Hurley) |
| End of January | Third Report (supervised by Tom Carroll or Donal Hurley) |

**The criteria for assessment – written reports**

The project report for Des MacHale concerns a topic on which the student has worked alone. Each student is given a non-trivial individual problem project, usually in some area of discrete mathematics. It is not always necessary for the student to solve the problem fully but progress towards a solution must be made, and the reports must be typed and presented in an acceptable form. Advice and consultation are made available to each student with respect to their individual problems. Generalization and expansion of the given problem are strongly encouraged.

The project reports for Tom Carroll and Donal Hurley are envisaged as individual reports on the team's research, in the spirit of a laboratory report in Chemistry or Physics. Students are generally familiar with this model where the experiment itself is carried out as a team but written up individually. In all cases, the emphasis is on the students' own engagement with the mathematics involved, and not on the level of apparent mathematical sophistication that may perhaps be achieved through the extensive culling of material from other sources without demonstrable understanding or critical analysis. In this context, we are aware that significant information on the topics to be investigated in the course may be found in the library or on the Internet. While we feel that sensible use of the Internet is not to be discouraged, we make it clear to the students that reports that show understanding and engagement with the topic on the part of the student will be more highly valued by the lecturers than a list of theorems and proofs, no matter how high-powered they may seem. From this point of view, the assessment criteria mirror those for a critical essay in the Faculty of Arts.

Thus, the primary criteria for assessment of the written reports is that the student show evidence of clear personal engagement with the mathematics, of having made appropriate use of experimentation and of problem solving techniques in attacking his or her chosen topic, of having made appropriate use of the computer, including computer code and, finally, of having made clear progress on the topic.

A secondary criterion is the standard of presentation and organisation of the report – an introduction to the topic discussed, clear exposition of the results obtained, an apt incorporation of numerical and graphical results with a clear account of their relevance. After the first year of the course, we made it mandatory that reports be typewritten.

**The criteria for assessment – the team presentation**

In this case, it is not so much the mathematics but the standard of presentation that is to be assessed. Here we are looking for evidence of clear cooperation between the team members in the organization of the presentation, appropriate use of aids such mathematical computer packages,

Power Point or overhead slides, confidence and clarity during the talk, the ability to engage with the audience and to solicit and answer questions from the audience, and adherence to time limits, including those pertaining to the internal allocation of speaking time to individual team members. In the context of an assessment scheme of this nature, it seemed appropriate to the course teaching team that the mark for the presentation be a team mark, rather than an individual mark.

**The process of assessment**

All three lecturers attend the presentations, forming opinions on each team's talk. Soon after the presentations, the lecturers meet to discuss and finalise the marks for each talk, taking into account the assessment criteria delineated above.

The individual supervisors initially assign the marks on each of the three written reports. After all reports have been marked, the teaching team meets to formally assign final marks. Each lecturer presents an overview of the reports he has received and makes a comparison between them and the standard of projects from previous years. After all reports have been looked at by each of the lecturers, so that cross comparisons can be made, final report marks are agreed.

**Expectations of student achievement**

The primary focus of this course is the personal engagement of the student, both individually and as part of a team, with certain topics in mathematics. Here the topics themselves are not of central importance, in that none of the mathematics that the students meet in the course is a strict prerequisite for later modules. The artistic analogy is that of the writer confronted by the blank page. We want to put our students in front of what may seem at first sight to be an unsolvable problem, one that does not fit neatly into a category that they have already met, nor one that is but a minor variation of an example that a lecturer may have explained in class. Worse still, and this is a fundamental strand in Des MacHale's lectures, the 'problem' itself may be badly-expressed and may need to be formulated properly as a problem in mathematics (this being a problem in itself!). This experience of being faced with badly formulated or open-ended problems is not one to which students are accustomed. The primary expectation of student achievement, then, is that the student faces this blank wall and, with the support of the lecturers and of his or her peers, makes progress in attacking the problem. This is a somewhat more prosaic restatement of the first objective of the course: to develop the problem formulation and problem solving skills of the students. In a very real sense, the blank wall is a meta-motif for MA2053: in one of his lectures, Des MacHale asks the students to imagine they are walking in a forest when they come up against a very high wall that stretches as far as the eye can see in both directions. How can they get past this obstacle? Each year the students come up with innovative ways of 'solving' this problem.

Having taken this course, a student should have more confidence in his or her own ability to think independently and to tackle what at first may appear to be an obtuse problem.

**7. Our experience of teaching this course**

**General overview**

Following the planning phase described earlier, the course was offered for the first time in the academic year 1998/1999. At the introductory lecture we are always confronted with a range of

reactions. Students do not have any difficulty in understanding what might appear at first to be a complicated course structure and course assessment. They find the information sheet distributed at the introductory lecture useful, and of course they clarify details by talking to the lecturers and amongst themselves. Most students are unperturbed by what is expected of them, while a small minority repeatedly seek clarification as if unsure of how they will cope with this non-standard course. These are the students who would potentially benefit most from the course, as they display a certain lack of confidence in their ability to succeed.

**Section 1**-**A** attempts to give the students an outlook on mathematics and problem solving radically different from what they have previously encountered. No longer do they need to take 'what the subject or nature throws at them' but are empowered to take the controls, sit in the driving seat, and make the subject do what they want it to do rather than be at the mercy of an individual problem. Phrases like 'what if' and 'suppose we could arrange that' abound; there is keen student participation, interaction, and free exchange of ideas, and even infertile ideas are not dismissed. The lecture atmosphere is very lively and time passes very quickly. The course team freely admit that they learn just as much as the students every year, even about topics in which they feel they are already well versed! Students learn for the first time the benefits of cooperation and that in sharing their skills and talents with others they soon benefit themselves. We even encounter instances of students sharing their special skills in computing to help less able classmates with their projects, a situation not often encountered at undergraduate level.

**In Section 1**-**B** of the course, when they enter the computer laboratory and begin to experiment and to work on the problems in the worksheets, some of the students need time to adjust to the open-ended nature of the work that is expected of them. Whereas students feel protected in the environment to which they are accustomed, in which assignments are clear cut and closely tied to the lectures, they can feel at a loss in one that is more like the 'real world'. The course teaching team are aware of this problem and have been able to help students through this phase, as the need arose, through reassurance and leadership.

**The formation of student teams** during Section 1-B turned out to be effortless. We find that there is a natural transition in this phase of the course from individual work to group work. We always maintain a light-hearted and informal atmosphere in the laboratory and this encourages the students to discuss the worksheets together and to help one another. Typically, when one student finds out how to do something in *Mathematica*, he or she shares this knowledge with others in the class. Sometimes, when the class as a whole seems to be stuck at a problem, the lecturer breaks the problem down for the students and asks the class to solve these sub-problems one at a time. It is a pleasure to find that the students soon ignore the lecturer altogether and talk directly to each other – the class is working as a coherent group! By about the third or fourth laboratory session some small groups of students tend to sit together and form a natural team. Tom Carroll and Donal Hurley need only to be aware that each year there are one or two students who may be somewhat shy or have not yet gotten to know others in the class. We first identify a suitable team that they could join (by now we know the students in the class well and can tell which students might interact successfully) and approach the student to see if he or she is agreeable to joining this team. The arrangement is then formalized.

**Section 2**, while one might not imagine so at first, progresses very smoothly. Each year we find that by now the students are clear about what is expected of them and enjoy their team

collaboration. It is in fact almost surprising to see how the course becomes more fluid and the official lectures become somehow superseded, as each team finds ways and times of working together that suit them. For instance, teams commonly remain after class to continue working on their projects or presentations (there is no general rush for the door at five to the hour!): in short, students become interested and involved in what they are doing.

**The presentations** are the highlight of the course. It is an event that is thoroughly enjoyable and in which the course teaching team and the students participate with gusto. The course team has regularly been surprised by the ingenuity of the students and the quality and sophistication of the presentations.

### Some of the difficulties that we encountered and how we addressed them

The difficulties that we have encountered generally involve either class dynamics or team dynamics. Under the first heading come worries on the part of students when confronted with the challenge that this course places in their path. Dynamics within a team can also lead to a range of difficulties – from lack of participation on the part of one student to over-dominance on the part of another. The examples of such difficulties that most stand out are outlined in the following paragraphs.

Towards the beginning of the course in 2001/2002, a group of students in the class showed great resistance to what was being expected of them – as is perhaps understandable when an effort is required to think for oneself and come up with solutions to problems, rather than simply follow a polished course of lectures where the lecturer has ironed out most of the difficulties beforehand. The course coordinator that year, Tom Carroll, was approached by this group to seek a clearer explanation of what was generally expected of them, looking for reassurance in effect. When the reassurance they were offered did not seem to work, in that these students continued to be lost in class, didn't know how to use the computer package *Mathematica* (not even its 'help' function), the coordinator spoke officially to the class to address any difficulties they might have and, more importantly, to assure the students that they were among the cleverest students in U.C.C., to remind them of how much they had already achieved in their careers to date, in the Leaving Certificate and in their First Year Examinations, and to encourage them to confront with confidence the challenges in the course. The attitude of the class changed dramatically and immediately – from then onwards everyone in the class displayed much more enthusiasm and made a much greater effort. This episode was the most notable case of the rite of passage that Section 1-B of the course seems to constitute.

We had two principal problems related to team dynamics. On one occasion, the second year that the course was run, one student said that he was absolutely unable to take part in his team's presentation. He had taken part in the work of the team and even in the preparation of the team's presentation, but would not be able to speak in public. Having discussed this amongst ourselves, the solution that we put forward was that it would be enough if he was to attend the talks, sit with his team during their presentation, and limit himself to even a single introductory sentence. This would have been a significant step forward in overcoming what was for him a difficulty that would be sure to recur in more serious and work-related contexts. Following lengthy discussion with the student in question, in which we stressed the non-confrontational and friendly atmosphere of the team presentations, he said that even this minimal involvement would be too much. As a result, the student received a mark of zero for the presentation component of the course. The course team subsequently took into account that the remaining members of the team were at a disadvantage when making their presentation.

Quite the opposite difficulty arose with a team in the academic year 2001/2002. A team of three, that had formed naturally, included an extremely good and somewhat arrogant student. The lecturing staff were aware that this student dominated the team's work and that he may have been working at a mathematical level that was too advanced for the other two members. However, when the lecturing staff made polite inquiries of them and gave them overt opportunities to bring any reservations they might have to the attention of the course team, the other two students insisted that they felt comfortable with the situation. Come the end of term, the team's presentation was not well organised and was not divided into clearly delineated sections that each team member would discuss. Their presentation was dominated by the student in question, who spoke for most of the time and answered all the questions from the audience, leaving the remaining team members visibly uneasy both with their role and with their command of the material being presented. Despite the high mathematical level of the talk, the course teaching team did not rate the talk very highly. The lack of personal involvement of the other two team members was confirmed when the third written report was received: one report was submitted with all three names attached. At the teaching team meeting to assign marks, we decided to evaluate the report as it stood, but to divide the marks equally between the three members of the team. We knew that this situation could not have resulted from a misunderstanding of the course requirements on the part of the students, since they had already correctly submitted three individual reports on their team's first project and the information sheet distributed at the first lecture stated explicitly that individual reports were required.

**Adjustments we have made from year to year**

We have been entirely satisfied with the course structure and process of assessment as it was originally envisaged and have seen no reason to make significant changes. At the same time, arising from discussions among ourselves and sometimes in order to take account of changing circumstances, we find that certain improvements can be made each year. Some of these are outlined in the following paragraphs.

The mathematical content of MA2053 is revisited each year as a matter of course, including the worksheets and the handouts that the students receive. The most difficult aspect of this work of revision has been to find the correct level of the topics for investigation by the students – if these are too open-ended then the students can be entirely at a loss and become dispirited, if they are over-specified and pedestrian then the thrill of discovery is lost. For instance, each year it was felt that it was necessary to give somewhat more direction to the students in their research work, as they were spending too much time 'discovering' the basics of a topic, without reaching its more interesting aspects. For example, students were directed to *Introduction to Chaotic Dynamical Systems* by R. L. Devaney for background on Iteration of Functions and to *A Course in Number Theory and Cryptography* by N. Koblitz for background on Primality Tests, both being well-known and standard works in their fields. Initially, in fact, we underestimated the time that it would take students to learn how to work and do research essentially on their own. Therefore, we gradually increased the amount of direction and of background knowledge revealed to the students. Furthermore, the problems and topics for investigation have gradually become more structured each year, with steps that lead to a more or less predetermined conclusion. It is a difficult balance to achieve, and one with which we are unlikely ever to feel entirely happy.

The mathematical content of MA2053 is reconsidered on a regular basis in order to maintain the freshness of the course. The module is of course always new to the students, but we are aware of

the danger that we might lose some freshness and spontaneity. The mathematical details relevant here are described under the heading, *The mathematical content of the course*.

While the students who take MA2053 are very competent at Mathematics, there are some variations in their background which, we realised, require that the delivery of the experimental sessions be modified. The two major variations are a result of the fact that not all students will have taken Applied Mathematics in their First Year – either because they come from the Faculty of Arts or because they did not include that subject in their First Science group. Students who did not take Applied Mathematics in First Year have no previous experience with *Mathematica* and they have had no exposure to the Algebra of Vectors beyond that which they may have gained at Leaving Certificate level. A somewhat flexible approach has to be adopted at the early experimental sessions to deal with these students. A tactic that works well is to seat these students together and structure the sessions to deal with the two groups separately. During these early sessions, it is possible to concentrate on the group of less experienced students while the others can progress through the worksheets with less assistance.

For the first two years the team presentations were held during class times on two separate afternoons and in the assigned teaching rooms in the Science or Food Science Buildings. This was somewhat unsatisfactory, as it hampered the smooth running of the event – since no laptop computer was available, we needed to carry a P.C. computer between buildings, and the setup and presentation time was limited by the availability of the room both before and after the assigned lecture hour. The lecturers furthermore worried that the teams who spoke on the second afternoon were at a competitive advantage, both because they had more preparation time at their disposal and because they had the benefit of observing the other teams' talks. When the School of Mathematics, Applied Mathematics and Statistics was assigned its space in Aras na Laoi and a School Seminar Room became available, we moved the presentations to the evening of the last Wednesday of term, so that all presentations were held at one sitting, the infrastructural support was much more suitable and students would have the opportunity in the afternoon to prepare their presentations in the room where these would be held. An evening timeslot has also had the advantage of lending a sense of occasion to the proceedings, which both students and staff enjoy enormously.

We have made attendance at lectures and at laboratory sessions compulsory. Since students choose which topics they will develop in their investigations, we found that it was possible for them to miss some lectures or sessions that were not directly relevant to these topics. Now that lectures are compulsory, students derive maximum benefit from all sections of the course. If a student misses a lecture, then he or she is required to submit replacement written and/or computer work.

## 8. Comprehensive appraisal of the course

### Have the objectives been met?

Each year, especially at the meeting at which final marks are assigned, the teaching team judges whether the objectives of the course have been met. In effect, this is reflected in our evaluation of the work produced by the students, in our evaluation of their engagement with the material and their use of problem-solving techniques, in their appropriate use of the computer as an aid to doing mathematics, and in our evaluation of the standard of presentation of the students.
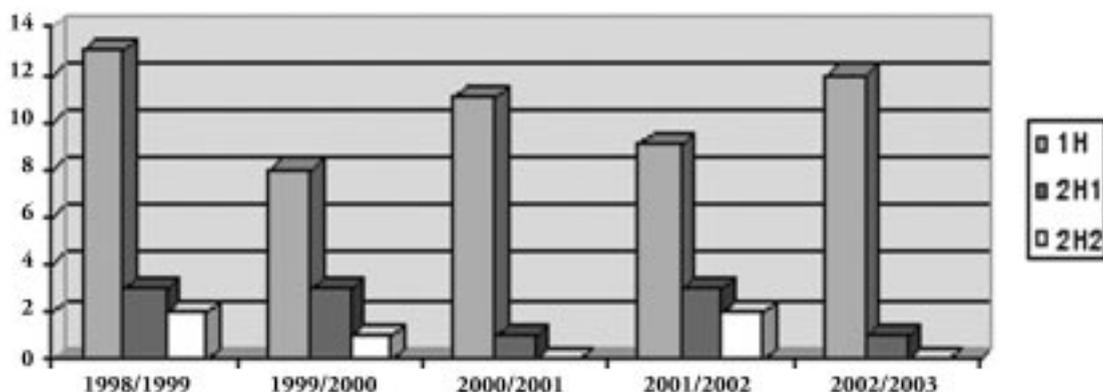
## Evidence of success

Several MA2053 students have gone on to represent U.C.C. at the Intervarsity Mathematical Competition, based on Problem Solving, which U.C.C. won in 1999 and again in 2002.

Teams of U.C.C. students have participated each year for the past three or four years in the international Mathematical Contest in Modeling (MCM), which is run by the Consortium On Mathematics and Its Applications (COMAP). U.C.C. students have been very successful, generally outperforming teams from the other universities in these islands. This contest, held over a long weekend, is based on a choice between two open-ended problems that are described verbally, so that problem formulation and problem solving skills come into play, as well as team-working, computer modeling and writing presentation skills. Since MA2053 fosters precisely these skills, we have no doubt that this course is a major contributory factor to these successes. A confirmation of our belief comes from a recent article by M. Parker et al., based at Eastern Oregon University[7]. The authors maintain that 'the MCM depends not upon an individual's abilities, but rather the *combined* talents of a group … not only are applied mathematical skills important, but verbal and written communication skills are equally important in helping a team succeed … [S]ince there is no single right answer, the competition develops students' skills in solving ill-defined problems. We view this as a critical skill for either industry jobs or graduate school' (p. 291).

Many of our Honours students participate in the annual Boole Prize Contest organized by the Student Mathematical Society. This is a long-running competition in which contestants present a 20-minute talk on a mathematical topic of their choice. The standard of presentations at this competition has noticeably improved in recent years, and we believe that this is another positive effect of the introduction of this course, as well as evidence of its success.

Marks in this course are generally higher than those which students receive in the other, more traditional Second Year Mathematics modules, although there is a clear correlation between a student's MA20503 mark and his or her marks in other courses. Some of our colleagues feel that we may be too generous and that marks in project-style modules, such as MA2053, are higher because of structural reasons. On the contrary, we point to the excellence of the reports that the students produce, and the excellence of their presentations. We believe that the high standards achieved by students in MA2053 are a sign of their enjoyment and involvement in the course, and clear evidence of its success.

## MA2053 – Results by Year

| Year Class | Size | Average Mark |
|:---:|:---:|:---:|
| 1998/1999 | 18 | 75% |
| 1999/2000 | 12 | 73% |
| 2000/2001 | 12 | 74% |
| 2001/2002 | 14 | 71% |
| 2002/2003 | 13 | 80% |

Further evidence pointing to the success of the course is constituted by feedback from students and from colleagues.

## Feedback from students

The students consistently show that they enjoy the course enormously. They get particular pleasure from working in teams – they have listed among their favourite aspects of the course 'doing the projects and listening to the others' and 'working as a group towards a common goal'. One student said that 'the projects made me think about things which would not have been considered in lectures. I pushed myself further than if there was no project'. They also think that learning to use Mathematica is very beneficial, though some students do tend to find this difficult, at least initially. They seem to be aware of the importance of problem solving; to quote one student, 'discussing different ways of approaching a problem' was beneficial. Their confidence is boosted by the course – one student commented: 'The problem solving was good, because it made me realise that even I can solve problems'. The students develop a sense of community and purpose and the continuous assessment means that once the course finishes in January they need not worry about the course any more for that year.

We advise students to draw attention to their problem solving and other analytic skills when it comes to job interviews. Students have told us that employers sit up and immediately take notice when one of our graduates informs them that he or she actually has a qualification in problem solving.

## Feedback from colleagues

Our colleagues have drawn to our attention that an unexpected result of the institution of MA2053 was the spontaneous formation of a class spirit that lasts throughout the remaining undergraduate years. Furthermore, they know that the Mathematica skills that students have developed in MA2053 may be drawn on in their regular courses. Some lecturers subsequently encourage their students to tackle problems using Mathematica and the problem solving skills that they have at their disposal.

Some colleagues at other third level institutions in Ireland have been very interested to learn about our Mathematical Experimentation and Problem Solving course, and have voiced the possibility of developing a similar course at their home university.

## 9. The mathematical content of the course

The spectrum of Mathematics that students meet is very broad. Des MacHale emphasizes topics in Discrete Mathematics, including geometrical packing and dissection problems, problems from

abstract algebra and plane geometry, and combinatorial problems. As an example of the latter, in 2001/2002 one student suggested as his individual project that of determining the number of possible nine-dart finishes in the game of darts, and produced an original and very interesting report on the subject.

Donal Hurley also covers aspects of combinatorial and graphical techniques of Mathematics. A major topic that he covers is the solution of ordinary differential equations, including the plotting of solutions graphically. One application of these differential equations is the modeling of predator-prey dynamics in Biology. Students find this very interesting and it has the further advantage of encouraging the investigation of the dependence of the solution on initial conditions and the effect of the variation of parameters. A second main topic introduced by Donal is the geometry of space curves, including the plotting of the standard families of curves, and the determination of the curvature and torsion functions for these curves. The algebra in such computations can be onerous even for relatively simple curves, so this is an excellent topic whereby to impress on students the usefulness of *Mathematica* and of computer algebra systems in general.

Tom Carroll introduces students to the area of Dynamics, which is popularly known as Chaos and includes Iteration Theory and Fractal Geometry. This is an important area of current mathematical research that is not covered elsewhere in our curriculum. Furthermore, it has the advantage of being very much amenable to experimentation and conjecture on the part of students and it is an area in which even seemingly simple examples can be very revealing. Once the basic notions have been introduced, those of fixed and periodic points, of orbits and that of graphical iteration, students are ready to investigate examples on their own. The link between orbits and sequences dovetails nicely with the students' analysis courses.

Drawing on a Third Year Honours Number Theory course that he developed, the topic having been re-introduced into the Mathematics programme in the academic year 2000/2001 after a gap of almost twenty years, Tom Carroll has included a second area of investigation, primality testing, this academic year. Primality testing is the development of techniques to determine whether a given number is a prime number or is composite, and is a nice application of computer techniques that is somewhat different from those developed elsewhere in the course. For example, one needs to be able to compute the exact remainder when one large integer is raised to the power of another large integer. The notions of pseudoprimes were introduced as well as the associated primality tests. To the total surprise of the lecturers, one team discovered on their own a recent research paper in which it is proved that it is possible to test for primality in polynomial time. This solved a long standing problem in Number Theory. As their project, the team worked to understand the algorithm in the paper, requiring some quite sophisticated algebra lying outside the standard undergraduate curriculum, and implemented the algorithm in *Mathematica*.

## 10. Teaching and research

The objectives, structure and methodology on which MA2053 is based derive from awareness on the part of the lecturers of current developments in teaching methodologies. Because of the predominance of Calculus in undergraduate programmes in the U.S.A., the majority of research focuses on this area. We have adapted these methodological strategies to meet the requirements of a problem solving course for a group of bright undergraduates at U.C.C., and continue to keep abreast of developments in this area.

Moreover, their research interests dictate the lecturers' selection of the topics for investigation by students. As mentioned earlier, Des MacHale has a long-standing academic interest in the promotion of problem solving skills. Both of the topics chosen by Donal Hurley, the solution of ordinary differential equations and the geometry of space curves reflect his research interests in the dynamics of geodesic flows and in the geometrical aspects of physics. Complex Dynamics, and in particular Julia sets of various classes of entire and meromorphic functions, has been an area of active research in Complex Analysis for many years. The inclusion of iteration theory, fractals and chaos (albeit in the context of real-valued rather than complex-valued functions, in order to match the background of Second Year Mathematics students) reflects Tom Carroll's research interest in Complex Analysis. [Even so, some students do choose to explore the dynamics of complex-valued functions.]

## 11. The future

Many of the students who will take MA2053 in the coming academic year have entered U.C.C. through the new CK407 Mathematical Sciences entry stream. The dedicated Mathematical Sciences First Year programme for these students includes a course that incorporates *Mathematica* as well as compulsory Applied Mathematics courses. Thus these students will enter MA2053 better prepared from the mathematical and the computing point of view, but the deficiency in these areas on the part of Arts students who choose Mathematics to degree level is thereby exacerbated. This variation in the background of the students was mentioned earlier in Section 7, and will require careful attention on the part of the course team next year.

The work that has gone into the preparation of this portfolio has demonstrated to the course teaching team that it would be perfectly possible to put together a coherent booklet containing the materials that we have developed and have refined over time, for distribution to students at the beginning of the course. Another idea that has come to mind while preparing the portfolio is that of filming the student presentations again in future years, with the idea of making the videotape available to students so that they may evaluate their own presentations from a critical perspective. We have begun by making this year's videotape available to the students.

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6 Des MacHale, *Mind-Bending Lateral Thinking Puzzles* (London: Lagoon Books, 1996); Des MacHale and Paul Sloane, *Logical Thinking Puzzles* (New York: Sterling Press, 1993); Des MacHale, *Comic Sections* (Dublin: Boole Press, 1993).
7 Mark Parker, Holly Zullo and Norris Preyer, 'The Mathematical Contest in Modeling: Success at a Small Regional University', *PRIMUS*, vol. 9, no. 4 (1999), pp. 289-300.

# CHAPTER 9

## LITERATUR VERSTEHEN UND INSZENIEREN
## FOREIGN LANGUAGE LITERATURE THROUGH DRAMA
## A RESEARCH PROJECT

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*Department of German*

"… without research we do not have a lodestar to show us which way to face as we tack our way toward more effective teaching"

(Betty Jane Wagner, 1998)

### 1. Challenges for Literature Teaching Today – the Need for Action

While in the past it could be indisputably claimed that literature was of high cultural value, today the situation seems to have changed. It is harder to convince today's students, who have grown up in a media-driven society, of the value of literature. In a "visualised world" literature finds it increasingly difficult to compete with the power of the image, as presented in cinema, computer games, internet and on television. Also, the fact that people today, including students, are often pressed for time does not particularly help the case of literature as reading, especially close reading, takes a lot of time.

Due to the rapid technological advances in recent decades we find ourselves exposed on a daily basis to huge quantities of information as well as acoustic and visual stimuli. We have to assume that, in order for human beings to cope with this "Reizfülle", our mode of perception has had to adapt accordingly. Lehmann (2001,11) postulates that while in previous decades the predominant mode of perception could be described as linear-successive, these days it has been replaced by a mode of perception which could be described as simultaneous-multiple. Such changes with regard to perceptual modes are most likely to have consequences for the way in which students learn, including literature-based learning.

Literature has traditionally been the territory of the discipline of "Literaturwissenschaft". While it has always enjoyed a privileged position within German programmes at third level and it has always been assumed that students go through a valuable learning process when studying literature, representatives of "Literaturwissenschaft" have neglected in their research to describe and evaluate the actual teaching and learning processes which take place in literature courses. Hence, to date we have hardly any empirical evidence for what constitutes good teaching and efficient learning in literature-based courses, seminars and lectures.

This contribution is based on the hypothesis that in order to ensure the survival of literary studies in German curricula, future research needs to make more transparent for students, the wider public and, most importantly, educational policy makers, why the study of literature should continue to have an important place in modern language curricula.

We advocate that the subject debate be shifted from a discussion of text- and author-related analyses and theories to a development and discussion of (innovative) teaching and learning practices. Teachers of literature need to become pro-active and lay open what exactly is happening in their lecture theatres and seminar rooms, in order to find answers to questions like: What is the value of literature study? What does the quality of literature-related learning processes exactly consist of? These are questions that prompted us to engage in a research project. In what follows we will give a general introduction to the project, before evaluating it in more detail in section five.

## 2. Origins and rationale of research project

We contend that students' willingness to engage with literature will, in the future, depend to a great extent on the use of imaginative methodology on the part of the teacher. Therefore, in what follows, we will describe a research project which we undertook at University College Cork from October – December 2002. It was sparked off by our belief that alternatives need to be developed to the traditional form of literature teaching, i.e. the 50-minute lecture. Aware of the fact that in today's world students can get information on a certain topic, author, literary period etc. instantly, we were guided by the notion that the lecturer's role must shift from being predominantly a transmitter of information to a facilitator of group processes.

In the Department of German at University College Cork literature courses form a significant part of degree programmes for students of Arts, Language and Cultural Studies, Law and German and Commerce with German. Students can choose from a variety of courses which, for the most part, are delivered using the lecture or seminar format.

The impetus to design a literature module using an alternative mode of delivery came from a new scheme of awards initiated at University College Cork in 2001. The Awards for Research on Innovative Forms of Teaching and Learning were created as part of a university initiative to foster the scholarship of teaching and learning. The following extract from our initial award application outlines the rationale behind the design of our new literature module entitled "Literatur verstehen und inszenieren":

> The aim of the project is to investigate, document and evaluate the learning process that is set in motion when learners are confronted with literary texts. It is our opinion that the conventional approach to the teaching and learning of literature at University College Cork, that is the lecture format, does not lend itself to such a study, since its focus is on the result of the process, usually the production of the traditional literary essay or critical commentary, rather than on the process itself. We therefore propose to develop an alternative approach to the study of literary texts which enables the learner to engage with those texts on several different levels and provides the teacher/researcher with means of observing, documenting and evaluating the learning process.

> The methodology we plan to use in the development of this approach is that of drama pedagogy … In keeping with the proposed methodological approach, we envisage that the course would consist mainly of workshops, culminating in a performance consisting of a collage of scenes from German literary texts.

Following a successful award application, "Literatur verstehen und inszenieren" was offered as an optional literature module to final year students of Arts, Language and Cultural Studies and Law

and German in the first term of the academic year 2002-2003. In addition to the 24 contact hours prescribed for a module with a credit weighting of 5 credits, students were informed that they would be expected to attend two one-day workshops to facilitate longer blocks of rehearsal time closer to the performance. The module was assessed by continuous assessment. This consisted of two components: a practical assignment, which included participation in workshops and preparation of the performance, and a written assignment in the form of a learner diary. The practical and the written components were allocated 50% each. The interactive nature of the module meant that the number of participants was limited and 13 students elected to take the course. Over a period of 12 weeks the two-hour workshops took place in a classroom and in the university's Granary Theatre and its studio rehearsal space. The performances took place in the Granary Theatre on 11th and 12th of December, 2002.

By offering such an alternative we do not claim to have a recipe for the learner's lasting interest in and engagement with literature. However, we are hopeful that our model might be of interest to colleagues and become a starting and reference point for a fruitful discussion of how motivation or even enthusiasm for the study of literature can be (re)generated and sustained over the next years and decades to come.

## 3. Drama Pedagogy and the Language Arts

While in past centuries and decades, modern language teachers might have used elements of play in their teaching, it is especially since the 1990s that the role of drama and theatre in the language arts has become part of the subject debate (for example Schewe 1993; Schewe/Shaw 1993; Dufeu 1994; Kao / O'Neill 1998; Tselikas 1999; Schlemminger/Brysch/Schewe 2000; Bräuer 2002; Even 2003; Huber 2003) and the discipline of drama in education has become an important reference discipline for the modern languages, leading to the development of innovative concepts of language teaching and learning, a most recent example of which is Susanne Even's (2003) concept of "Dramagrammar", i.e. grammar teaching and learning through drama.

While such publications have paved the way for acknowledging drama's important role in modern languages methodology, this is a relatively new area and hence fertile ground for researchers with a particular interest in building bridges between the modern languages and aesthetic education. While over the last decade researchers have focused mainly on the teaching and learning of *language* through drama, relatively little attention has been given to the teaching and learning of *literature* through drama[3].

In the secondary literature one might sporadically come across examples of drama-based approaches to literary texts in the classroom, but there is no coherent theoretical framework as yet for such approaches. Furthermore, while there are occasional reports and articles emphasising their benefits, there is as yet little empirical evidence for learning processes in drama-based projects which set out to achieve a product, i.e. a public performance. However, in this context the perspectives of Smith (1984) and Bourke (1993) are of interest and, more recently, Moody has argued that it would be a waste of learning opportunities to focus exclusively on process-related work in the classroom, emphasising that performance-related projects be seen as an integral part of drama-based teaching and learning:

> I would agree unhesitatingly that improvisation and other process approaches are

frequently very effective, and that they allow learners to interpret the world through both their bodies and voices, in order to practice the gestures, movements and utterances of the target language and culture in spontaneous and imaginative ways. However, literacy is also at the core of how human beings communicate and situate themselves in relation to one another and over time. We also have the texts of our lives, which are not only written upon our bodies in spontaneous oral communication, but additionally in our classroom assignments, creative writing pieces, and in our great works of literature. Powerful aesthetic responses can also spring forth from a preconceived text. Serious reflection is required to interpret play scripts, and within those texts are the records of a language and culture, and the memories of past sensibilities and communicative acts. In the social milieu of foreign-language theatre, teachers and students are able to portray these texts for their audiences, and to present the richness of the dramatic art form as intercultural speakers and performers. (Moody 2002, 138-139)

While Moody from his perspective as an outside investigator in two case studies offers an interesting insight into different target groups' (secondary school students' / college students') responses to process and product-oriented approaches and, on the basis of his observations, emphasizes the rich potential of product-oriented approaches, he gives hardly any information regarding the theoretical framework which guided his research or indeed the different data sources his research was based on. While Moody's reflections help to consider the principal distinctions between process and product-oriented approaches, the claim that product-oriented approaches become an "inherent option for drama-based pedagogy" is already implied in the drama-pedagogical concept advocated by Schewe (1993). He attributes pedagogical value to multiple forms of drama-based teaching and learning, explicitly including product/performance-oriented projects, however emphasizes that each of these forms be looked at in terms of the quality of the learning processes they can achieve. Bearing this in mind we will, in what follows, outline the steps we took in order to establish how learners responded to a product/performance-oriented form of literature teaching.

## 4. Research Methodology

In her publication *Educational Drama and Language Arts. What Research Shows*, Betty Jane Wagner (1998) gives the first systematic overview of research projects which have addressed different aspects of teaching and learning language arts through drama. While we subscribe to her reservations regarding quantitative research (p. 241) which will not be recapitulated here, however, we note that, according to Wagner, qualitative research studies

> look closely at what teachers and students do both during and after a drama … Like the anthropologists who try to understand a culture by making sense of its rules, taboos, unstated values, and tacit knowledge, interpretive researchers approach the classroom as a specific culture; and they try to illumine how the participants make sense of their experience there. Qualitative researchers work to discern the meanings the students make of the drama experience and categorize these in ways that elucidate the enterprise. (Wagner 1998, 233-234)

Accordingly, in our research project we set out to discern how final year students of German at University College Cork responded to an innovative drama-based approach to literature which was

to culminate in a public performance, and to categorize their responses in ways that elucidated some of the central characteristics of such an approach.

As our research is mainly of interest to teachers of foreign language literature, we allowed ourselves be guided by Wagner's (1998, 241) claim that "teachers need rich descriptions, the kind that typically include long verbatim quotations of students' oral and written output", as studying specific cases has a more powerful effect on their decisions than the impersonal presentation of empirical data which is typical of quantitative studies.

Hence, as is typical of practitioners who conduct the research themselves in order to improve practice, we decided to apply an action research framework. After all, according to Louis and Mannion (1994) action research "… is concerned with innovation and change and the ways in which these may be implemented in ongoing systems" (188) and seen as a "means of injecting additional or innovatory approaches to teaching and learning" (189). However, we restrict ourselves here to the basic stages of action research projects as described by McNiff (1993, 65)[4]:

Stage 1 Discuss your concern. What are you wanting to improve?
Stage 2 Decide on a strategy for change and improvement.
Stage 3 Put the strategy into effect – act!
Stage 4 Evaluate the outcomes of your action.
Stage 5 Modify your statement of concern in the light of the evaluation.

In what follows we will adhere to these stages, but mainly focus on stages 3 and 4, in order to give readers a sense of how students reacted to this form of teaching. In order to work towards "data triangulation", we will refer to examples taken from three different sources which emphasise the learners' perspective:

◆ Learner diaries
◆ Student responses to an anonymous electronic survey
◆ Video transcript of a discussion with students on the last day of the course.

As part of the formal requirement of this course the students were asked to keep a learner diary and given guidelines accordingly (for details see Appendix, 8.1). Aware of the fact that the assessment factor might possibly prevent an individual student from being as open as possible about his/her learning experience, we ensured that students were also given an opportunity to respond anonymously to their experiences in this module by filling in a questionnaire which was centrally evaluated by the Quality Promotion Unit, University College Cork. Furthermore, we recorded several of our seminar sessions on video, including the final discussion with the students, which was subsequently transcribed and, together with the learner diaries and the questionnaire, will be referred to in what follows. While these became our three main data sources, we also collected photographic evidence. However, for reasons of space we have to restrict ourselves here to only a few examples which highlight the learners' perception of performance-based literature learning. Note that the learners' names have been changed.

## 5. Evaluation of Performance-based Literature Learning

### 5.1 Concerns
As already stated under sections 1 and 2, the starting point for our research project was our concern about today's students increasing lack of motivation for the study of German literature

and our own dissatisfaction with the predominant forms of literature teaching, i.e. the teacher-directed traditional lecture or seminar. Therefore we set out to develop an alternative form of literature teaching and thus to improve teaching practice. Based on the premise that a more active learning methodology was required and on our experiences in the separate fields of literature teaching and drama and theatre studies we decided on a drama-in-education approach for this course.

## 5.2 Strategy for Change and Improvement

Obviously there are differences between analysing a literary text in an essay or critical commentary and preparing it for performance. Both require a certain understanding of the text, which in both instances finds different means of expression. Performing a text necessitates the use of vocal and facial expression, gesture and movement on the part of the performer. Other considerations are set, lighting, sound, costume, props, make-up, all of which are devices that can be employed to communicate an understanding or interpretation of the text. A change in the tone of the voice, a pause, a gesture, an adjustment in lighting, the addition of music, to give just a few examples, can convey so much on stage, and decisions about such things often require just as much consideration as a written analysis. Hence, as a strategy for change and improvement, why shouldn't the interpretive tools of the theatre be used by students of literature?

## 5.3 Theatre Making as a Model – Action and Evaluation of Action

Within the theatre-making teaching model, the student of literature becomes the actor/performer who enters the rehearsal process in the knowledge that when it is over he/she will perform before a live audience. This prospect immediately lends the learning process a dimension of urgency and anticipation. In their learner diaries some students describe the effect that simply working in a theatre space had on them:

> Today we were in the Granary Theatre, which I absolutely love because it is so atmospheric. I think that working here helps us to perform to a higher potential.
> (Rachel, November 22nd, 2002)
> An atmosphere of anticipation prevailed. We were all delighted our group was allocated the Granary. It is an inspiring space to work in. Even though the chairs were empty, I immediately became more focused on the needs of an audience.
> (Ciara, November 11th, 2002)

The prospect of a performance means that the motivation to participate and learn is immediately very high as the student/actor has even more of a vested interest in performing well. Whatever about privately receiving a low mark in a written piece of work, no one wishes to suffer the humiliation of failure in public. Working together towards a performance created a work ethic in the class group and instilled in the students a sense of ownership, responsibility, commitment and teamwork. There are several references to that effect in the students' learner diaries. For example:

> Unfortunately, I had to unexpectedly go to Limerick today and so I missed the class. I was really disappointed, as I had successfully managed not to miss any up until now. The worst thing was that not only was I letting people down, but I would miss out on a lot of work too ... It was not until this stage that I comprehended how much ground we covered in one class. (Rachel, December 4th, 2002)
> Never before have I put so much into anything outside sport, especially where college is concerned. (Jean, December 12th, 2002)

The last thing I wanted to do was mess things up, as I would feel like I'd left everyone down. (Denise, December 9th, 2002)

I am convinced that the performance around Christmas provides a real focal point for the class and influences us to settle down to work faster in each class and to work hard on producing something by the end of each session. (Joe, 25th October, 2002)

We exceeded the number of sessions prescribed for this course almost two-fold, we were required to attend a total of 24 sessions, but instead we partook in 42 sessions. The 18 extra hour-long sessions were completed by us of our own free will and surely indicate the enthusiasm of those who took part in the course … Those who partook in the course did so with an enthusiasm that I have not witnessed in any other course during my four years at university. (Gary, Introduction to Learner Diary)

I didn't see "LiteraTOUR" as an assessment while I was on stage. I was there for myself, and the group, and it meant a lot to me that it went well. (Lisa, December 13th)

Taking the theatre-making process as our model necessitated using the methods of theatre work. Therefore, workshop sessions always began with warm-up exercises normally used in the drama classroom to generate energy, free the body and the voice and focus the mind on the work at hand. Having divided the group to work on different texts, each teacher would then engage in text-specific exercises with his/her group, mostly in different rooms. In the limited time available each group then worked on preparing a text, or sometimes two texts, for performance before the other half of the class. The performances were followed by a feedback session in which students commented on the performance of the other group and on their own experience of the session.

**Dramatisation of the text**

Betty Jane Wagner (1998, 183), referring to Benton , describes the reader as follows:

Benton (1979) has characterized a reader not just as an interpreter but as a performer who builds a mental stage and fills it with people, scenes and events from the text. Students who respond to literature by creating a drama transform the classroom into this mental stage.

This is exactly the process our students engaged in when, after some voice and warming up exercises, they were asked to consider how the text could be dramatised using visual images. The image of a train was suggested by one student and this then sparked further ideas. A student describes the process in his learner diary:

When I read "Reisen" it seemed to be quite a monotonous poem. I could not have imagined that it could be performed entertainingly … However, using the new-found possibilities for our voices, we quickly developed a scenario for the poem, whereby six of the group were passengers on a train with Leonard as its driver. Using the full range of our voices and imaginations we were able to conjure up different moods for each person involved in the performance, I was flamboyant, Siobhán was exhausted and so on. By realising the possibilities of our voices we were able to give life to what seemed to be quite a monotonous poem. We were also able to experiment with different concepts of how we would stage the piece. Trina did not dictate what we were supposed to do, but instead acted as a guide, keeping the momentum in the session, contributing her own ideas but also remaining open to the ones which we contributed. (Gary, 18th October, 2002)

While working on the dramatisation of "Reisen", the students made discoveries about the text in a natural and spontaneous way. They decided to allow the up-down motion of the train that they physically formed to dictate the rhythm in which the poem was spoken and they coordinated speech and movement accordingly. They adhered to the structure of the poem by dividing up the lines of the text among different speakers. Through the creation of characters who spoke their lines in different tones of voice, with varying facial expressions, gestures and movements, the students tried to convey the moods of the different people who might be travelling on a train to Ulm. Based on the break in the text, they decided to add a train driver who would speak the poem's final two lines – he, they thought, was the only one with no real reason for going to Ulm – other than having to drive everyone else there! Gary continues his description of the session as follows:

> The resulting performance of "Reisen" was thus like a tapestry that had been woven from the imagination of everyone involved in the piece. It belonged to all of us, it was something that we had not just done because we were told to do it, we were not merely following instructions. This I believe led to the pride that developed within the group as a whole; because the final performance was to be a reflection of ourselves, we wanted to make each piece as perfect as possible. It was this perfectionism and pride that was also the motivating force in the extra sessions and work that we completed. (Gary, 18th October, 2002)

This extract highlights an important aspect of the course which is considered in the next section.

**Roles of the learner and the teacher**

Gary's description of the learning process which he experienced in the particular session outlined above is frequently echoed in the data sources. In her diary entry following the course's final meeting, which took place after the performances, Lisa reflects as follows:

> This course is very different to any course I've ever taken at college before, and the learning experiences that come of it are worth more than other courses I've taken … It was a broad learning experience, where I developed talents and had to challenge myself in ways that I had not done before. It was a great improvisational class, it was a real open scenario. Every class we had was an experiment and a process of exploration, and all of us had a hand in being part of that experiment, whose results came out positive. We were like a team with two leaders, our two lecturers, but instead of the lecturers playing traditional roles, they played much more active roles in the classroom, communicating directly with us, the students. The role of the learner was really important in this course, the emphasis at all time was on us, the students. The course required us, the learners, to be adaptable, creative, inventive and independent. (Lisa, 13th December, 2002)

In the anonymous electronic survey (see Appendix, 8.2) the students were asked the following question: "How does your role as a learner in this module differ from your role in other literature modules?" Recurring words and phrases with reference to the learner's role in this module include: "more active", "necessity for participation", "more involvement", "more interaction", "input". All of this is seen by the students as having the following results: "more confidence", "fun", "enthusiasm", "motivated", "part of a team". To quote one anonymous response in more detail:

> Rather than sitting back spending an hour trying to absorb what a lecturer has to say on a particular piece of literature, in this module I am free to express my opinions and play an active role in making literature "come to life". I also felt that instead of just learning for myself, what I learned was also of benefit to my classmates because we were all working towards the same goal.

If the role of the student undergoes such a dramatic change, then the role of the teacher must do likewise. In the data sources the teacher is often referred to as a "guide", rather than being regarded as an all-knowing authority. An example from the video transcript and one from a learner diary:

> *Gary:* It was more like having someone with you. Just sitting there, just listening, the group really participating with the lecturers, you were more like guides than dictators. You go into a class, and they say things and you take them down, and you might question things, but at the end of the day your lecturer knows what's right, but here it was more like everyone making something together. It was cool.

> Since this module began, I haven't looked on either Trina or Manfred as "lecturers" in the traditional sense. I feel the role they play in this class is more that of guidance than instruction, in the sense that instead of telling how a text should be performed, they assist us in working through our own ideas and interpretations ... in their capacity as guides rather than lecturers, they allow for a large creative input from the students; a factor that is generally overlooked in traditional literature courses.
> (Denise, 1st November and 13th December, 2002)

Thus, taking the theatre-making process as a teaching model succeeds in shifting the focus of teaching and learning away from the teacher and on to the student, a move that is certainly perceived by the students as something positive.

### Student reactions to drama-based literature learning

As is evident from the workshop session described above, this model also provides both teacher and learner with different mechanisms with which to approach a literary text. On the video of the module's final discussion session, two students describe the drama-based approach used as follows:

> *Ciara:* For me, I always liked literature, but I often have found it hard to visualise a text. I might read it and often wonder about vocabulary and all that, and this course helped me to actually imaginatively understand a text better.

> *Gary:* I read "Reisen" and I thought, what a load of crap, and it seemed like the most boring text that I had ever seen – "Ich bin mit dem Zug nach Ulm gefahren" – come on, and then the most important things we did for all the texts was to make them very visual and very un-texty.

This reaction is echoed strongly in the anonymous electronic survey (see Appendix, 8.2). In Question 1, using a scale from 1 to 10 (1 = strongly disagree; 10 = agree completely), students were asked to indicate the extent to which they agreed or disagreed with the statement: "In this module I have experienced new ways into literary texts". 69.2% of students indicated their complete

agreement, while the remaining respondents circled either 8 or 9. In response to the question "Has this course introduced you to new dimensions of learning?" all of the particpants answered "yes" and two went on to comment as follows:

> This course has definitely introduced me to new dimensions of learning. Before, I found myself thinking of literature as merely words on a page. Now I approach texts with eagerness, as I now like to envisage the scenes as if they were playing out in front of me. I find this to be a helpful learning technique as I feel I can connect to the text in some way.

> Performance of texts allows a deeper understanding of the contents. It heightens one's sensitivity to the language of the text and imprints the contents on one's memory.

One of our aims in developing this module was to offer an alternative approach to the teaching and learning of literature that engages the learner on several different levels. We introduced our students to Howard Gardner's (1993) theory of multiple intelligences so that they could reflect on their own learning from this perspective. In the anonymous electronic survey (see Appendix, 8.2) they were asked to rate on a scale of 1-10 how frequently they thought they used their various intelligences during the module workshops. The responses indicate frequent use of linguistic intelligence, as one might expect from a literature course, but also of spatial, bodily-kinesthetic, intrapersonal and interpersonal intelligences.

**Other learning**

It is evident in the data sources that, in the course of the module, the students were aware of engaging in learning that was not solely of a literary nature. As they prepared the texts for performance, their appreciation and knowledge of theatre as an aesthetic medium increased. Watching the other half of the group perform in each workshop session made them more aware of the needs of an audience. As the workshops gradually became proper rehearsals, including technical and dress rehearsals, the students increasingly referred in their diaries to the effects of lighting and sound, as well as the importance of cues, timing, pace, pause, fluidity of entrances and exits, movement, and use of space. Because the performance consisted of a collage of texts, it was necessary that it have an opening and an ending, as well as links between the various texts. The students therefore had the additional challenge of staging the performance in such a way as to make it a coherent whole. In addition to performing, each student was a member of a working group responsible for preparing a particular aspect of the performance e.g. costume and props, programme, posters, tickets and post-show discussion. This process prompted one student to comment in her diary: "There is a lot more to theatre than one thinks". Another reflects on her experience as follows:

> I have learnt a lot from this course but what I think is the most important lesson in relation to performing is that the more you hold back, the worse it looks on stage. The stage, I feel, is like a massive magnifying glass where all movement and expression is scrutinised and interpreted instantly by the audience. (Jean, 15th November, 2002)

Students also mention that participating in "Literatur verstehen und inszenieren" helped their self-confidence, improved their organisational, communication and time management skills and

convinced them of the value of dedication, motivation and teamwork. One student summarises the experience by saying: "This has given me something other than a mark towards my degree, which is important and sometimes people forget this" (Ann, 13th December, 2002). Two other diary entries elaborate this thought further:

> To conclude, if this module has taught me nothing else, it is to think more positively about daunting projects. But I have learned far more than that. I understand now that it is impossible to know your limits when you haven't even exerted yourself to your potential and so it is always a worthwhile exercise to push yourself to see those limits and to see what your capabilities are ... I have come to realise the importance of quality preparation work through our warm-up exercises, which also taught me invaluable skills that include, but also stretch beyond the realms of drama and theatre work. Skills such as voice projection, building confidence, energising one's self, trust and many more besides. My creative abilities were also utilised and although they are far from extensive, at least I now know they are there and that they can be used for everything from writing an essay, to acting out a poem, to understanding literature. (Rose, 12th December, 2002)

> What did we learn from it all? The first thing that I learned was that literature isn't just words on paper. Literature is more like baking soda. In its dry powder form it isn't very exciting, but if we add water it starts to fizz and bubble. You could look at a thousand books, you could even read them, but without imagination they are just fossils of life that once lived. Literature needs to be lifted from its pages and brought to life. This is something that I learned to do as part of this course.

> Did we learn anything else? When I was a boy my mother would tell me "Stick to the books because you're no good with your hands". I only discovered lately that my mother was wrong. I think that a lot of us discovered hidden talents, that we weren't just "good at the books", that we could be creative. I never knew that I could play the role of the clown or the street performer. I never knew that Ciara could sing so beautifully or that Denise could play the flute. I never knew Jean could sound like a washerwoman or that Joe could sit alone in front of an audience under a spotlight and read aloud. I never knew any of these things before and maybe they didn't know them either. I didn't know that there was another way to teach. I didn't know that there was another way to learn. I never knew learning could be fun, that reading poems and plays didn't have to be a chore. I never knew that I could do so much work and not complain about it once! During the course we learned a lot about literature, about each other and ourselves. (Gary, 12th December, 2002)

Many of the students use the words "pride", "satisfaction" and "sense of achievement" with reference to the performance, which they regarded as the very concrete result of their coursework and an essential element of the module, as is evident from the following exchange in the final session:

> *Manfred:* ... Staying with the performance, and staying with the more overall context of the course and imagining this kind of module would happen again next year. Do you think the performance element is a good element to keep or could the course happen without the performance?

*Leonard:* No, I think it's good, because then they have to reach a level of perfection, which they possibly wouldn't bother if ...

*Denise:* It's much more satisfying to see something actually come out of your work. Something you can be proud of and something that you can see after three months of work. It's nice.

Presenting their work in this public way appealed greatly to the students, as did the opportunity it afforded to receive feedback on it from people other than their teachers. To quote one example:

There was a fantastic atmosphere among the cast afterwards. We were all excited, the adrenalin was buzzing and we felt good about ourselves because of what we had achieved ... the appreciation of the audience when it's finished. This kind of direct and immediate response to what you have completed is an overwhelming experience. In life in general, there aren't many times where you experience this. (Ann, 11th December, 2002)

## 6. Conclusions and New Concerns

In light of the converging evidence from different data sources, only a fraction of which could be dealt with here, we can claim with some conviction that moving the site of teaching and learning from the classroom to the theatre opens up many exciting possibilities for teacher and learner. The new roles that both must play in this creative arena are challenging but rewarding. Interactive and collaborative learning is fostered in a way that allows a valuable encounter with literary texts, fellow learners, teachers and, perhaps most importantly, oneself.

While this method of working might not appeal to every teacher of literature, we nevertheless are of the opinion that modern language departments which in the past have put special emphasis on literature and intend to do so in the future, should take the learner's perspective seriously. Admittedly, some of the learners' critical feedback might appear to be a bit too black and white and therefore undifferentiated, but it nevertheless conveys a sense of how learners feel about different approaches to literary study.

This project is our first attempt to look at the learner's perspective on literature study in a more systematic fashion. However, given the narrow time scale and the pressures we as practitioners who conducted their own research were under, we had to abandon our original plans to also look in more detail at the teacher's perspective, the issue of assessment, language learning etc. Based on teacher diaries and other data sources, it would be necessary to establish further how students perceive team teaching, how a teacher selects text material that is suitable for a performance, plans a workshop, develops specific skills and so on.

For us this action research project has given rise to a number of questions and has led us to consider modifications to last year's module. For example, as a result of discussions with the students, we have changed the weighting for the two course components. Instead of a 50:50 distribution, now the weighting for the practical assignment has increased (60%) and, accordingly, the weighting for the learner diary been decreased (40%), reflecting a more realistic assessment of the time and effort the students have to invest into each of these components.

Questions which have arisen for us and which need further attention include, for example:

◆ How could a course such as this, which emphasises aesthetic practice, be fruitfully complemented by a literature course which focuses on theory and looks at issues of theatre history and different conventions within the dramatic genre?
◆ What kind of research tasks can be assigned to students to ensure that they read and engage with a wide range of literary texts?
◆ What drama pedagogical teaching techniques are available to the teacher and how can these be applied in order to achieve specific learning objectives with regard to literary study?

Based on the data we collected and evaluated, we recommend that modern language departments introduce courses which offer a hands-on experience of literature that is different from that encountered in lectures and teacher-directed seminars. Like the farmer who varies the crops he/she sows to keep the land at its most fertile, we propose that departments advocate a variety of teaching methods in the teaching of literature. We wish to conclude by repeating our conviction that while the survival of literary studies in modern language curricula will also depend on a number of other factors, it will, to a considerable extent, depend on how teachers use imaginative methodologies, including drama in education, in order to create a genuine interest in literature:

> … we did a good bit of literature last year, and I didn't read a single book to be honest. I got by, without reading the books. I researched the essays, found a few books in the library, there you go, there's your exam. Didn't need to read the books. There you go, but there was a genuine interest through this medium.
>
> (Denise, video-recorded final discussion)

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# CHAPTER 10

## INNOVATIONS IN TEACHING:
## TEACHING IT TO UNDERGRADUATE NURSES

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**Why teach IT to nurses?**

The study of Information Technology designed and relevant to nurses has been labelled Nursing Informatics (Hannah & Ball, 2000). This term and what it represents has become part of nursing's professional vocabulary and practice. It combines all aspects of nursing – clinical practice, administration, research and education – just as computing holds the power to integrate all four aspects. In Ireland in 2002, undergraduate preparation for nurses changed from a 3 year Diploma Program to a 4 year Degree program (BSc in Nursing). As a result, 200 undergraduates registered in UCC and this number will be repeated annually over the foreseeable years. As advances in information technology offer nurses an efficient way of organising, storing, retrieving and communication nursing information regarding patient care, the curriculum for the BSc program includes a module (NU1027: *Professional learning and IT skills for Nurses*) in first year and a further follow-on module (NU4025: *Healthcare Informatics for Nurses*) in fourth year.

This paper aims to describe delivery of NU1027 in 2002, which represented an innovation in teaching practice, as it was the first time such a module has been delivered in undergraduate nurse education in Ireland. NU1027 is a 5-credit module, which is delivered in two parts (Parts A & B). The focus in Part A is on study and writing skills while Part B is on IT skills only. For the purposes of this publication, emphasis is on Part B only. Modular content differed from generic IT training in that it was tailored to nursing requirements and nursing knowledge.

**The understanding goals were:**

◆ To adapt to using computer assisted learning in order to scaffold students learning and assessment processes.

◆ To understand theoretical underpinnings of nursing informatics.

◆ To understand the role of Information Technology in relation to word processing, developing a presentation and managing spreadsheets in relation to ward budgeting.

◆ To understand the impact of information technology on the profession of nursing in relation to security and confidentiality of patient information.

◆ To understand health and safety implications of using computers both from a nursing and patient care perspective.

◆ To understand and manipulate literature searches using health related databases.

**Modular content**

Lectures were delivered to groups of 70 and topics related to
Security and confidentiality of patient information
      Electronic communication
      Health and safety issues related to IT.
      Nursing Informatics.
      Making presentations
All lectures and related notes were available to students on Blackboard.com.

Tutorials on computer skills were delivered in two-hourly timetabled sessions in a computer lab, which held 25 computers and one shared printer. Each student was given 14 hours tutorial. Teaching aids included a Prolite data projector, a white board and handouts were provided on each element taught using Blackboard. Each session had time inbuilt for reflection and practice of newly acquired skills. During each lab skills session, each student was actively involved in his / her learning by completing, evaluating and saving to floppy disk mini-activities related to particular sessions.

**Skills addressed during tutorials included:**

◆ Microsoft word: the rationale for including this application was that as many nursing information systems are Microsoft based, students who were familiar with Word would become familiar with other Microsoft applications.

◆ MS PowerPoint: At least 90% of students had never used this application prior to these sessions. As the module progressed, students prepared a presentation on a topic of their own choice and evaluated each other's work. Both undergraduate and postgraduate nurses use this application quite frequently during in-service training at hospital level.

◆ MS Excel: Very few (<5%) students had used Excel prior to these sessions. Students worked on spreadsheets using a variety of examples drawn from ward budgeting scenarios. Again, students worked interactively to evaluate each other's ability to copy formulae or work with 'fill handles'.

◆ Health related databases such as CINAHL, Pubmed, First Search were introduced to facilitate students and provide research based written assessments. Some of these databases are available at ward level in order to help nurses working in the clinical area deliver evidence based care. Student activities included searching, refining searches, and pasting their searches onto a clipboard.

◆ In order to introduce students to the concept of CAL, some computer lab time was committed to the use of Blackboard. All material relevant to tutorials and lectures were available under course documents. Announcements related to the module were placed in the relevant section and students were advised to log on at least twice weekly. Discussion threads related to module content and broader nursing issues proved very popular with students and new postings could be found regardless of time or day of the week. Assessment for this module (Electronic Portfolio) was placed under the Assessment section and students were expected to submit their work to the Digital Drop Box section. A discussion thread and a handout supported the assessment.

◆ Over 60% of students were familiar with searching the Internet. However, creating a mini web tool of relevant nursing web sites proved popular. Links to these nursing websites were placed under External Links in Blackboard.

## Assessment of the module

Stiggins (1994) describes a portfolio as a collection of student work that demonstrates achievement or improvement. For the purpose of assessing this module and in order to engage students in learning through assessment we (the module team) developed an IT portfolio. As this part of the module only represented 2.5 credits, we did not want to create a portfolio that was too onerous for the student, but we did want to capture a sample of learning. Therefore the expectations for the portfolio were to

◆ Develop a presentation using MS PowerPoint. Explicit guidelines were given in relation to content, number of slides, use of format and layout, use of graphics.
◆ Conduct three literature searches on specified topics. Specific limits were given in relation to the searches e.g. nursing care of women over 65yrs who suffered from anaemia.
◆ Submit the portfolio to the Digital Drop Box in Blackboard. By doing this from their own activated account students were demonstrating an ability to store and manipulate files electronically.
◆ Submit a hard copy of the portfolio in order to provide evidence of ability to submit written work for assessment i.e. use of title page, table of contents page, page numbering, organisation of work, provision of introduction / conclusion sections.

## Rubric development

An instructional rubric was developed in order to give students informative feedback and detailed evaluation of their final product, – see Table No 1. *Rubistar* software was used to facilitate its construction. Goodrich Andrade (2000) suggests that although the format of an instructional rubric can vary, all rubrics have two features in common: (1) a list of criteria, or 'what counts' in an assignment and (2) gradations of quality, with description of 'strong', 'middling' and 'problematic' student work. Criteria used in the instructional rubric were:

Delivery of presentation
Use of visuals in presentation
Evidence of manipulation of literature database
Evidence of use of computer assisted learning
Submission of portfolio by hard copy

Grades used were excellent, good, fair, and unsatisfactory

**Table 1 – Instructional Rubric**

| DELIVERY OF PRESENTATION | Evidence of transmissions, animations, use of different auto layout, presentation runs in a smooth, logical flow of content. Content related to NU1027 | Presentation is smooth, use of two or less examples of auto layout, evidence of either transmissions or animations only. Content related to NU1027 | No transmissions or animations. Content logical – not related to NU1027 | Content illogical, no transmissions or animation |
|---|---|---|---|---|
| USE OF VISUALS IN PRESENTATION | At least two examples of graphics used – one clipart and one other e.g. photo excellent use of colour, evidence of change of colour to either background or text. Evidence of text formatting | Two clipart used. No evidence of colour change. Some text formatting | One clipart used. Auto format | No graphics used. No evidence of change to auto format |
| EVIDENCE OF MANIPULATION OF LITERATURE DATABASE | Evidence of 10 records related to a specific search, evidence of limits set, evidence of literature pasted onto a clipboard | Evidence of literature searching, not pasted onto a clipboard or marked record | Evidence of literature search, unclear if limits were set or not e.g. year of publication | Poorly defined topic, inadequate number of searches presented i.e. under three, inadequate number of articles found i.e. under 7 |
| EVIDENCE OF USE OF COMPUTER ASSISTED LEARNING | Presentation submitted via digital drop box in blackboard, using the users own account | Presentation submitted via email using blackboard, using users own account | Presentation submitted via blackboard, another users account used | Presentation not submitted via blackboard |
| SUBMISSION OF PORTFOLIO BY HARDCOPY | Includes a title page, declaration page, table of contents, both entries are separately presented; all pages of content are numbered sequentially | Includes a title page, declaration page, table of contents without page numbers, pages are not numbered or are numbered by hand | Includes a title page, and two entries – not numbered. | Some / most of the required content submitted – without a title page etc |

## Evaluation

Module evaluation was conducted by questionnaire using Markclass. This is software specifically developed to facilitate evaluation of any type. Students completed a questionnaire online, which was then analysed in 'real time'. This means that all results and statistics generated by the data is updated each time an individual completes an evaluation. Results revealed that 46% of students (n=200) had not studied computer / IT skills prior to commencing the BSc nursing program. Attendance to tutorials ranged from 81 – 98%. The most highly rated lab session (extremely useful) was that related to database searching (68%). Only 2% of respondents felt that more topics might have been included in the practical sessions.

## What they said

Individual comments from students included:

> 'I really enjoyed this module as the lecturers concentrated on computers from a nursing perspective'

'Everyone (in my group anyway) seemed to enjoy it. It's different from lectures in that it's more relaxed and that makes it easier to learn. Job well done. We're happy about something at least!!'

Comments from the external examiners included:

'I particularly commend the content and assessment of NU1027 that assesses the basic IT skills of the students – this is often overlooked in other Universities' (Dr D.Mitchell, Professorial Fellow, University of Salford. External Examiner with particular reference to Mental Health Nursing Studies).

'This is an imaginative assessment strategy, which is appropriate for the outcomes set for the course. Many of the assignments were well executed, with beautifully presented presentations in power point being submitted by many students. In the main, the three database searches were also well managed; (Dr L. Barriball. Kings College London, External Examiner with particular reference to General Nursing Studies).

**Involvements in other innovations in teaching in Nursing:**

Teaching IT skills to nurses (either undergraduate or postgraduate) is both exciting and challenging. It is exciting because of the current exponential growth involved in this area of knowledge and it is challenging to combine nursing, educational and IT theory. However, my background as nurse, lecturer and qualified IT teacher facilitates that challenge. During 2002 I completed an online Harvard WIDE program on using web tools in education, which has been enormously helpful particularly in designing and operationalising the Electronic Portfolio and the instructional rubric. It also provided the impetus to provide other innovations in teaching here in the School of Nursing and Midwifery – for example teaching Legal Issues to Higher Diploma in Perioperative Nursing students. This involved structured interactive teaching on nursing practice codes, nursing legislation, accountability, and informed consent particularly from a Perioperative nursing perspective. In this series of lectures students drew from their clinical experience and received much of their theoretical content from a folder of selected websites entitled *Web Tool for Hdip Periop Nurses.* Construction of this web tool was facilitated by *ThinkingGear* (software application). As in NU1027, lectures were delivered where each student had access to a PC. The emphasis for these lectures differed from NU1027 in that the focus was on theory related to legal issues for Perioperative nurses not on computer skills. Students evaluated these sessions very positively both verbally and in the quality of their summer examination scripts.

**Reflections**

As a teacher, I believe students develop a deeper level of understanding if they are facilitated to interact with new knowledge rather than act as passive recipients. The type of thinking is reflected by Jonassen, Carr, Yueh (1998) who suggest that technologies should be used as knowledge construction tools that students learn with not from. Computer applications when used by students to represent what they know e.g. NU1027 IT portfolio, Web Tool for Perioperative nurses, necessarily engages them in critical thinking about the content they are studying. Jonassen (1996) refers to computers as Mindtools when used in this context and goes further to suggest that students cannot use Mindtools as learning strategies without thinking deeply about what they are studying.

I believe I have been successful in meeting the understanding goals set for the courses described above as both student evaluations and quality of work was very positive. The teaching philosophy involved engaging students in active learning through the use of IT. Teaching in small groups of 25 students has facilitated this approach even though this results in a heavy teaching load (total group 200 students). My hope is that it will go some way towards shaping well-rounded, insightful and inquiring nurses.

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# CHAPTER 11

## THE MOBILE CLASSROOM IN UNIVERSITY COLLEGE CORK

*Ciarán Dawson*
*Ionad na Gaeilge Labhartha*

Ionad na Gaeilge Labhartha acquired UCC's first mobile classroom after a tortuous and protracted attempt to find a way around one of the College's more recurring problems: demand for space. In a nutshell, we had designed a new course (Dioplóma i bhFoghlaim agus i Múineadh Ríomhchuidithe na Gaeilge) which required the use of a networked Apple computer lab which we didn't have. We had a room (G01 Áras Uí Rathaille) and we had ideas for sourcing the money for the equipment. The problem was that the room is used for teaching from 9:00 am till 9:00 pm and has fixed furniture to accommodate 20 students.

We decided at an early stage that we should look at laptop computers. This still left us with three problems.

◆ *Storage:* where could we safely store the computers while still having them available to be deployed in the classroom?
◆ *Power:* how could we develop a system which would ensure the computers would always be sufficiently powered to last the full class?
◆ *Networking:* how could we ensure that all computers would have access to the network from the desks in the classroom?

We had already purchased fifteen (Apple) G3 PowerBooks. We had a secure cupboard built in our main office for them. They could not be charged at this location, however, and the logistics of moving 15 laptops from one room are far from simple. We decided to drill holes and insert network and power points into the floor at various positions throughout the room. Before doing this we came on the idea of wireless networking and began to view this as a solution to the network problem. We did, however, go as far a inserting our power points. While this gave us our power it was messy. There were cables all over the place. We felt we were moving towards a solution to our problems but it was far from ideal. However this was Summer 2002 and we weren't due to commence the new course till Autumn 2003.

It was at this point that I invited Apple's Education manager to our centre. I outlined the problem and he suggested the Mobile Classroom. As I had never heard of this he explained that it is a Titanium trolley divided into sixteen compartments each capable of holding a PowerBook or iBook and each with its own power supply. The whole unit plugs into the wall and will charge the batteries in each computer while they are not being used. The standard unit ships with an Airport Hub, a networkable printer, a scanner, ten 12 inch iBooks and one 14 inch iBook: the 14 inch one being intended for the teacher. Additional computers could be added to the order. Each computer contains the necessary hardware to connect to the network wirelessly via the Airport Hub which has an ideal radius of 150 feet. The unit includes Apple Remote Desktop.

This is a software package which allows the teacher to observe and control each of the laptops from the master computer.

We had already sought financial support from Foras na Gaeilge for our new course and they had expressed an interest but had requested that we name a specific item which they could fund. We got a quotation for a mobile classroom plus extra computers and sent it to them. The cheque for €39,000 arrived just before Christmas 2002. We immediately put our order into ATMac in Cork and took delivery of our unit in late January.

Professor Áine Hyland requested that we present the Mobile Classroom in a session in the Conference Room in the North Wing under the Support for Teaching and Learning initiative as a new teaching and learning technology. The session was attended by the President and members of academic staff along with personnel from the computer centre. We had also invited representatives from Apple and ATMac who attended. Such was the interest generated across various faculties, that it was agreed that a number of further Mobile Classrooms would be purchased for teaching purposes in the faculties of Science, Law, Arts and Commerce. Parallel to this purchase The Access Programme also purchased a further unit.

Ionad na Gaeilge Labhartha had several advantages at the time we acquired our first one.

◆ We had staff in place already who would take responsibility for the unit and who had the necessary skills to maintain the machines and the associated software.
◆ We had a physically small centre and easily dedicated one of our wall boxes as an access point which gave coverage to the full centre.
◆ Because it was the only such unit in UCC the logistics of supplying and installing the data necessary for networking the machines were within the current capacity of the Computer Centre. So we were able to supply all our machines with static IP addresses.

We ran into some difficulties initially due to a certain naivety in dealing with the network. Our hub began distributing IP addresses to other devices in UCC and we failed to implement the necessary security protocols to ensure the Wireless Network was invisible to all but our own computers. We were assisted by the Computer Centre in addressing these issues and have had no repeat of the problems. This experience has also been useful to others who have attempted to go the 'wireless way'.

We hope that the acquisition of the new units is only the beginning of a process whereby mobile classrooms will be made increasingly available for use by staff. It has been decided that due to the increased number of both wirelessly networked computers and wireless networks the establishment and maintenance of the new units in UCC will proceed differently from that originally acquired by Ionad na Gaeilge Labhartha, with the Computer Centre exercising more control over the equipment and its use. The wireless networks will operate in a VLAN (or virtual LAN). Effectively this means they will function as a separate virtual network within UCC. Certain wall boxes nominated by departments who want to use the units will be assigned to this VLAN throughout the college to provide access points for the mobile classrooms. Rather than provide and install static IP addresses on each machine they will be assigned dynamically as each machine appears on the network. Only machines whose MAC addresses have been approved by the Computer Centre will have access to the VLAN. The Computer Centre will upgrade and install software on the computers twice a year. Departments who wish to have software installed can request this to be included in the installation.

The next stage in deploying the Mobile Classrooms involves the development of structures within which they can be requested by staff who wish to use them. This involves assigning a person with responsibility for them within each faculty, assigning physical space for storage and identifying possible access points. To assist with and monitor this work we have established a support group of those with an interest in this technology. At present the support group is focussed mainly on the technical side of deploying the units but it is expected that as the year progresses and staff become more accustomed to the technology the emphasis will shift to the pedagogical approach to the networked classroom. The one exception to this is the Access Programme's unit. It is intended that these computers will be made available on loan to students for private study and to this end they will deploy their hubs in locations suitable for this. For instance they have agreed with the Students Union to install a hub in Áras na Mac Léinn.

Two particular security concerns have been voiced by the Computer Centre. Initially it had been hoped that this technology would provide a source of access to the network for students and staff who brought in their own laptops. This would be of particular advantage to students from abroad who generally do not have computers in their lodgings. It was pointed out, however, that this would leave the UCC network vulnerable to viruses acquired by these machines off-campus and it was agreed to shelve this idea until other ways could be identified to implement it. Another source of concern was that students using the wireless network, with the Airport Hubs might be in a position to monitor each others' computers. It was decided that this was a shortcoming of Apple's Airport hubs and that they should be replaced by Cisko hubs until such time as Apple tighten up on this issue. While the Computer Centre still have reservations about security they are satisfied that as much has been done as is possible with the technology as it is.

During the first year of use, the Access Programme's Classroom and Ionad na Gaeilge Labhartha's have been successfully deployed and most of the faculty units have also been successfully connected and activated. The process was somewhat slower than initially envisaged but by the beginning of 2004, most units were operational. As well as the unit in Ionad na Gaeilge Labhartha on the main campus, a further unit has been recently installed in the UCC centre in Dún Chíomháin in the Kerry Gaeltacht. The UCC unit has been used during the Symposium on the Scholarship of Teaching and Learning, by Bridging the Gap, by The Access Programme, by The Society for Italian Studies Biennial Conference which was hosted by the Department of Italian from 4 to 6 July 2003 and in connection with an Interschools Quiz run by RTE in Boole 5. In autumn 2003, it was used during a visit from Ionad na Gaeilge Labhartha in UCG: chuaigh sé i bhfeidhm orthu go mór. The Dún Chiomháin Unit has an ISDN connection to the Internet and will give students access to the web throughout the house and in the adjacent hall. It is also intended to use it to provide courses in IT skills for the local community. One such course was given by Rose Ní Dhubhda and Nuala de Burca over 25/26 September 2003. It was attended by eight people and was partly funded by Údarás na Gaeltachta. It is intended to build on this throughout the year. In every case where Ionad na Gaeilge has used the units it has been to provide a service which would have previously been beyond our capacity. In all cases we also received very positive feedback from those involved. For instance, the young people who participated in the Access Programme and in Bridging the Gap were given an experience of Irish in the most modern context where they gained useful experience in digital video, image and sound-editing as well as an introduction to presenting their work on-line.

This is a new facility in UCC. For the first time staff and students will have access to the World Wide Web in real-time in the classroom. The challenge facing us in the coming years will be to

incorporate it, where appropriate, into our work while at the same time ensuring that we avoid using technology for technology's sake. The questions we must be asking ourselves over the next year are how has it affected learning in the classroom? how are students interacting with the world of knowledge now at their fingertips? how has it altered our assessment of the learning of students. To this end it has been decided to create a log for each Mobile Classroom which will monitor the frequency and type of use throughout the year. The users' group will continue to meet on a monthly basis to monitor progress and to discuss our mutual problems and successes. It is hoped that this will combine to create a fruitful and dynamic cooperation between all who have invested time and resources in this project and that it will serve as an impetus to others to make a similar investment in the future.


**Glossary:**

***Dioplóma i bhFoghlaim agus i Múineadh Ríomhchuidithe na Gaeilge***
*Diploma in the Use of ITC's in the Teaching and Learning of Irish*. This is a new diploma being offered by Ionad na Gaeilge Labhartha.

***IP address***
This is a series of numbers which identify a computer on the Internet. A computer must have one to have access to the Internet. A static IP address is one which is assigned permanently to a particular computer. They can also be assigned dynamically as they are needed.

***MAC address***
This is a series of numbers which are unique to every computer containing a wireless networking card and by which they can be identified on a network.

***LAN***
Local Area Network

***VLAN***
Virtual Local Area Network

# CHAPTER 12

## THE LEARNING TECHNOLOGIES UNIT

*Grace O'Leary*
*Learning Technologies Unit*

Throughout the *Strategic Development Plan – 2000/2005* for University College Cork, the development and application of learning technology is a recurring theme. Included in various parts of the plan is the re-examination of current learning practices and the encouragement of student centred learning along with the exploitation of new technologies in assisting the learning process. In order to stimulate and support such change, the Learning Technologies Unit (LTU) was established in 2002. The unit is funded by the Higher Education Authority through the Technology strand of the Targeted Initiatives Funding (Support for Teaching).

The Unit is built upon four key elements:

### Content

The academic staff wishing to adopt new approaches to teaching and learning will provide the content for any applications.

### Technology

The Computer Centre provides technical support.

### Pedagogy

The input of the Education Department and the Teaching and Learning Support Team ensures that pedagogical best practice is followed at all times and that the appropriate balance is maintained between the requirements of the course, the preferences of the student and the impetus of the technology.

### Strategy

A management committee chaired by Vice-President Professor Áine Hyland and comprising the Director of the Computer Centre, Mr Martin Hayes, Head of Department of Education, Dr. Tom Mullins together with nominees from the Staff Enhancement and Development Committee of the Academic Council and both staff of the LTU itself provide the strategic input. The Committee, ensures that the strategy of the Unit continues to be aligned with the overall strategic objectives of UCC and that it contributes to a general transformation of the learning process in UCC. The Unit endeavours to bring in external expertise from those with demonstrable achievements in this area to assist with the development of strategy.

The Unit, currently with two Learning Technology Analysts was formally established in July 2002 although its work began in the autumn of 2001. To-date the LTU has been involved in a number of important developments supporting the strategic objectives in the support for teaching and learning.

The implementation of the Blackboard Virtual Learning Environment by the Unit has been a notable success in its first year of operation where the demand and use of the service is extensive and far in excess of expectation. Considerable support has been provided, to both staff and students, to ensure this successful implementation. The support ranges from staff training (provided as part of the training and development programme), to course management for academic staff in designing and developing an online component to their teaching. The LTU co-ordinates the delivery of the Blackboard service by liasing with the Computer Centre and other groups. The LTU is the point of contact for staff and students with regards to course management, information and general troubleshooting.

At the end of its first full year in operation, the UCC Blackboard service had grasped the imagination of both staff and students. The number of courses registered on the system had approached 250 with the number of participating lecturers at 190. Approximately, 3,000 students had enrolled on these courses. To support lecturers' use of Blackboard the LTU developed and delivered in-house training courses and support material from Introductory Sessions to Getting Started with Blackboard through to the Enrolment and Assessment course. Almost 200 lecturers took these courses in the first year.

The LTU is actively involved in projects that explore and bring new technologies into the classroom with the objective of assisting the teacher and enhancing the students learning experience. To achieve this, the Unit tests and compares different teaching tools and in turn brings them with advice on their use to interested staff. Such interactive teaching tools vary from a radio mouse and Tablet PC to improve presentation and electronic whiteboards namely ActiveBoard, Mimio, 3M Wall Display and Videoconferencing facilities for interactivity and reproducibility of teaching materials. As e-education quickly becomes a viable learning option, lecturers can use these and other teaching aids to provide a rich and dynamic classroom experience with students in class and those participating via a virtual learning environment.

The Unit is working with the Department of Pathology, Cork University Hospital in developing a Computer Assisted Learning Laboratory. This project is seen as a good learning experience in the area of real-time imaging. The research value of this project is recognised along with its significance as a project whereby many aspects of their teaching programme will be delivered electronically. The project consists of real-time digital imaging of tissue sections and gross pathology specimens their storage and presentation to undergraduate Pathology students in the Cork University Hospital via electronic form. Other aspects of this project include; clinical meetings, teaching sessions and also telepathology sessions for diagnostic purposes by remote pathologists.

A Mobile IT Classroom pilot project is currently underway in UCC (see Chapter 11). As co-ordinators of the application requirements for this project the LTU has been working with recipient academic departments in determining their proposed use and to ensure that the unit will be configured according to their needs.

The Learning Technologies Unit continues to experiment on how technology can enhance the educational process by innovating on the way technology is used in teaching. It provides an academic advisory service, which is sensitive to the pedagogical requirements of the academic community and their understanding of the application of technology to teaching. It strives to ensure that the application of technology to the learning process will be an integral part of the training and development programme.

# CHAPTER 13

## WEB-BASED LEARNING: COACHING – THE DARKNESS AND THE LIGHT!

*Anna Ridgway*
*Education Department*

Education providers are now facing the challenge of providing a flexible learning experience to meet the diverse needs of students. An increasing number of students are no longer satisfied with the regimentation of didactic lectures provided at set times. Online, or web-based learning attempts to answer these challenges by providing courses that may be attempted at times which suit the learner. WIDE (**W**idescale **I**nteractive **D**evelopment for **E**ducators), http://wideworld.pz.harvard.edu at Harvard University, Cambridge Massachusetts provides a variety of online courses several times a year. These courses are based on the Multiple Intelligences theory (Gardner 1983, 1991, 1999a, 1999b) and the Teaching for Understanding approach (Wiske 1998, Blythe 1998) developed by Project Zero, a Harvard research project.

I was a participant on one of these courses, on Assessment, in Spring 2001 and subsequently coached this course on several occasions. I also completed a Teaching for Understanding course, called the Dimensions of Understanding, in Autumn of 2002. In this paper I hope to share some of my experiences as a learner and as a coach on these courses.

Each course has one Instructor, but the learners are divided into small groups of between eight and ten learners, and assigned a coach. The coach gives constant feedback to the learners as they post their assignments. The coach generally endeavours to build up a community of learners, by modelling a positive approach, and by giving constructive feedback.

Coaching an online course poses many difficulties and challenges, which was not obvious to me when I was a learner on the same course. I became registered as a participant on the Assessment for Understanding course at WIDE with relish and not a little trepidation. I did not know what to expect and I had, in fact, signed on without knowing how much time I would need to commit to the endeavour, or if the time requirements were flexible or fixed. I received some information attesting to the number of hours I should make available, but I had not internalised this information fully before I registered.

As a learner, I responded to all assignments with speed and vigour in an effort to beat the clock, therefore, my contributions were initially short and direct. The course demanded that the participants should post an individual response to several assignments within a designated time. This meant that I had to decide how much of my practice I wished to make available for scrutiny, to a group of strangers with whom I had no personal bond, which I initially felt reticent about. To counter this I found myself discussing the assignments with colleagues, a practice that deepens the reflective process.

However, many of my preconceptions or even fears, proved to be unfounded, as my group of virtual co-learners gelled together very well. I had not anticipated that a diverse group,

geographically dispersed through the United States, Ireland, Belgium and Greece would actually make a team. Nevertheless, we did manage to do this within the space of just a few sessions. One of the reasons for this was the supportive feedback given to each other. We emulated the model of our instructor and developed a language of feedback that was supportive, questioning and challenging. I learned that I needed to question everything and take nothing for granted. Sometimes we were all actually saying the same thing, but the language precluded understanding until one asked very specific questions of clarification. This was not evident just with learners who spoke English as a second language, but our American colleagues often used terms that were unfamiliar to me.

The course required that we post our assignment to the discussion forum, and also that we would give each other feedback, the latter forming a part of the coaching role, the role of teacher and learner being totally entwined. The level of difficulty increased with each assignment. Each group was assigned a coach, but we as learners also had to act as coaches to one another. The asynchronous posting of responses allowed one time to read and reflect before responding, albeit within a restricted time frame. Learners were required to self assess their own practice and to peer assess each other's, which is a difficult skill to acquire and develop. I valued responses that were timely and succinct. I liked it when my virtual colleagues posed questions that indicated that they had really considered my posting and I felt affirmed in what I was doing. I found the whole experience challenging and tremendously enjoyable. I invested more importance, however, in the feedback from my coach and from the course instructor without realising that there was often more real interest and genuine understanding coming from my co-learners. I certainly found it frustrating that my coach had other commitments, which resulted in feedback being given late, or not at all, in some sessions. At other times the feedback was not quite focused on the points raised, which I felt indicated haste and a lack of interest. When I signed on for a second course, *Teaching for Understanding – The Dimensions of Understanding* I found it far less difficult to put my ideas across in the discussion forum. It was easier to identify learners with similar interests and to respond to their postings. This was a very intensive and challenging course, which required a great deal of collegial support from my fellow participants and my colleagues in UCC. In response to these experiences as a participant, I was determined that in my role as coach in subsequent courses I would be cognisant of all my learners' needs and try to reach out to as many of these as possible.

**Coaching – the darkness and the light!**

I began to coach with the same relish as I had shown as a learner but with even more trepidation – how could I possibly add to what these participants – who were experienced teachers – already knew? I felt it all to be a tremendous responsibility, but quickly realised that the support system that was in place was excellent. I could email my co-coaches or the course instructor at any time if I needed help. I also realised that my group of learners were just as nervous as I was. I attended a coach's workshop at Harvard in summer 2002, where the emphasis was placed on using an appropriate tone and voice in responding to learners. An online coach must select a "virtual voice" that facilitates reflection and helps to develop critical thinking in learners. One's tone should be nurturing, imaginative and analytical. We were advised against using threatening or sarcastic tones, or, indeed playing the 'devil's advocate', which may be misunderstood. Humour, often welcome in face-to-face interactions, does not always work in an online environment without the visual cues necessary to carry it through. Indeed, this was very evident when I became part of a team that piloted the online coach's workshop, and found it to be a very

different experience. It became a much more academic exercise, without the camaraderie I had experienced in the face-to-face workshop I had taken part in earlier.

I noticed things as a coach that I had not noticed as a learner. Initial postings were short until learners understood that their points of view were valued. Learners were hesitant to invest themselves or to put their own practice on the line until they could be assured of a safe environment where their concerns would be taken seriously. I was very concerned that my responses would be consistent and considered. I realised that I often felt that I was out on a limb when I had not received a response from my coach, therefore, I proposed to respond to all postings. Some of these responses were short and affirmatory, others were lengthy and challenging.

However, I began to realise that if *I* responded before the other learners gave peer-feedback, the discussion was stifled. Again, I could see that learners were placing more importance on the feedback from their coach, than from each other, as I had done myself. I began to respond later to allow the learners an opportunity to respond to one another. It brought to mind the situation one sees all the time in the classroom, where the feedback from the teacher is vested with authority, whereas peer or even self assessment or feedback is somewhat suspect – this view being held by both teachers and students. Working in the online environment helped me to challenge these misconceptions.

As a coach I found it more difficult to see how the group gelled together. As a learner I could take more responsibility for this; the greater the interaction with my colleagues the more we coalesced as a group. As learners we often emailed each other with questions about the course or related issues. As a coach I had to wait until a learner posted an assignment or response before I could respond to that. I could not initiate the discussion; the learners had to do the assignment first. I could post a welcoming note and encourage the group to post often in support of one another, but essentially it was up to them. This became even more of an issue when one of my learners responded by email only and did not post to the discussion forum at all. I transferred all of her responses to this discussion forum, and gave feedback, but, having realised that this learner did not take part in the general discussion, the other members of the group voted with their 'virtual' feet and did not interact at all with her. In essence, although I transferred the responses to the assignments to the discussion forum, mine was the only feedback given. It became very difficult to integrate this learner into the group.

As a coach I also had to contend with the demands made by the language barriers of learners who both thought *and t*aught in their own language, wrote their assignments in that language, and then translated them to English to post in the discussion forum. I applaud their commitment and dedication, but I found it difficult to respond to some of these because I could not really understand what they were actually saying. In some cases they confused tenses but the sense was clear, but at times the words did not really make sense. Some of the translations were very literal, hence, some of the sense and context were missing. It is difficult to ask for clarification when the meaning is absolutely clear to the learner, but the language used makes their meaning unclear to the coach. The assessment was not designed to assess their language skills, but I had to understand their thinking before giving appropriate feedback, without being critical of their command of English. These difficulties were not easily resolved.

One of the key differences in the roles of coach and learner was that as a learner I was only responsible for my own assignment. As a coach I had to try to motivate reluctant learners, anticipate difficulties and try to resolve problems I had very little control over. One of these difficulties concerned groups, dyads, or triads of learners who posted collaborative responses. While I have always advocated collaborative learning, I found it very difficult to deal with this in an online environment. Some learners, in the same school, decided to post collaborative work and this was accepted by the course instructor, with a caveat that this could change if we experienced difficulties. The difficulties were not really apparent until the course was well on the way, and by then it was difficult to make changes. Initially these groups of learners posted within the time frame *and* indicated that the work was representative of all in the group. As time moved on and the demands of the course grew, I was unsure if all of the learners were actually working or not. Some of the postings came in just one name, but on enquiring about the others I would be informed that the others would post separately. Sometimes these assignments arrived, sometimes not, but it began to become unclear as to exactly how much work some learners were actually doing. Because these learners were working collaboratively, they had a built in 'sounding board' for their ideas and did not feel the need to respond to other learners in the group. It became rare to have anyone from the collaborative groups respond to individual learners – yet this was a fundamental requirement of the course. How does one fill in the grade book, upon which certification is based, on this work?

Another difficulty I experienced was that as the course progressed and the demands grew, learners posted later and later. Initially I had plenty of time to respond to one assignment before the next was posted. However, as the course progressed and learners became involved in drafting and re-drafting their final projects, it became increasingly difficult to respond appropriately and well in the time available. Learners were invited to re-draft their work by taking the feedback into account. Some posted so late that the next assignment was almost due before I could give any feedback. This difficulty was compounded by learners who did not wish to re-draft their work at all, but remained silent after I had given feedback. It was at times like these that I really missed the personal, one-on-one situation of the classroom.

As time progressed many of these issues were resolved, but unfortunately others were just ignored. I learned a lot from the first experience of coaching and this gave me more confidence when coaching the second and subsequent courses. It became easier to identify problems, and I felt more in control about alerting the instructor and seeking help from either the instructor or the other coaches. I feel the language of feedback that I have acquired has been most beneficial in giving me this increased confidence.

Of course, there were many, many positive things about the coaching role that I found stimulating and rewarding. It became clear to me that however diverse the teaching sites, teachers everywhere had the same concerns and the same difficulties. They also showed a tremendous amount of dedication and commitment and were certainly willing to put in long hours endeavouring to better their practice. The teachers who signed on for this course invariably wished to reflect upon their practice and were willing to experiment with the approaches being offered to help improve that practice. Their frankness and honesty was very refreshing, in a profession that has earned a name for being isolationist, and I felt it a privilege to be allowed to 'peek' into their practice.

**Dissemination to University College Cork Staff**

Throughout the academic year 2002/2003, I undertook both small and large group sessions with University College Cork staff members who were interested in exploring online learning. In these sessions I introduced the staff members to the WIDE platform. We looked at the courses available and the requirements for entry into each course. Primarily, however, we discussed how each participant must take responsibility for developing the community of learners in the online environment. I hoped that this introduction would allow staff members to undertake courses with confidence, and also that they would find it easier to navigate the site when the course began. To facilitate this work I set up a discussion thread on *Blackboard.com* so that we could all discuss topics of interest. This requires intensive work initially, as it can be difficult to find a stimulating discussion to suit staff of different faculties and departments, but it is an area that I wish to develop more fully in the coming year. This work will help staff members to participate in a threaded discussion, to mentor each other and to become accustomed to both giving and receiving feedback from peers. Hopefully, this work will also encourage staff to undertake one or more of the courses available from WIDE at Harvard.

In December 2003 a Symposium on Online Learning was held in UCC. This two day event was attended by Dr. Lois Hetland and Nathan Finch of the Graduate School of Education at Harvard University. The former outlined her work in developing an online course from its first iteration through subsequent modifications, while the latter spoke of the technical aspects of the site. Dr. Iain McLaren of NUI Galway also shared aspects of his extensive experience of online work in Ireland and the United Kingdom. Dr. Paul Conway and Ciarán Dawson of UCC spoke of their work on Blackboard.com while Dr. Norma Ryan discussed the University's purchase of Markclass as a tool for course/class evaluations by students. Markclass allows staff and departments to design questionnaires, which students may complete anonymously. This symposium served to remind us of the dimensions of online learning, together with some of the difficulties inherent in providing this platform for students.

**Conclusion**

This paper has allowed me to reflect, albeit briefly, on the role of participating in and coaching a web based course. I have sought to identify some of the difficulties and some of the joys I have experienced. I find the experience to be as worthwhile and fulfilling as all good teaching moments are, with the added dimension of dealing with a geographically and culturally diverse group of learners. It has been a privilege to share this work with my fellow colleagues in UCC and I look forward to further dissemination of the work in the future.

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# CHAPTER 14

## SQUARE PEGS IN ROUND HOLES: EXPERIENCES OF DISTANCE LEARNING PROGRAMMES IN UCC

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*Centre for Co-operative Studies & Department of Food Business and Development*

From the earliest days of proposing the distance learning BSc in Mutual and Credit Union Business, it became clear that this new programme was not going to fit comfortably into '*the way we do things around here*'. Everything from course marketing to registration and teaching to examinations could never slot into the neat formula of conventional university course offerings. And considering the target students for this BSc programme, that was not surprising.

Picture addressing a group of potential students who have been away from the formal education system for several years, live a distance from UCC, hold down full-time jobs, have a spouse or partner, school-going children and aging parents. Now tell this group that if they wish to study for a degree in UCC, they must follow the conventional route to education: daily lectures on campus requiring full-time commitment. There will be few followers. But invite this group to study when and where they wish, attend weekend lectures and tutorials in a venue close to home every 3-6 weeks, and complete the exams at venues and times designed to suit their needs. There will be a cohort of followers.

And this has been precisely the experience of the Centre for Co-operative Studies and the Department of Food Business and Development in developing distance learning degree programmes. A number of successful distance learning degree programmes have been developed with the co-operation of other academic departments and universities: the first of these, the BSc in Mutual and Credit Union Business, which builds on the Diploma in Credit Union Studies and the Diploma in Social Integration and Enterprise and is offered through the Faculty of Commerce, broke new ground. In many respects, it paved the way for the BSc in Rural Development, which is offered by the four NUI constituent universities and builds on the Diploma in Rural Development. In UCC, it is offered through the Faculty of Food Science and Technology. And most recently, the MBS in Co-operative and Social Enterprise has been approved by the university as a distance learning progression route for graduates of the distance learning degrees. The MBS will be delivered entirely over the worldwide web.

The first key to the success of these programmes to date has, first and foremost, been the strong teamwork that has been associated with their delivery. Genuine co-operation and strong working relationships between academics and administrators within and across many departments and sections in the university have steadily built up. The second key to success has been the clear identification of the needs of distance learning students and the tailoring of courses and conventional structures to suit these needs. This has been a learning process and has resulted in the necessity for a paradigm shift by both academics and administrators throughout the university. Existing structures are evolving to accommodate the unique needs of distance learners separately and in a more flexible manner, perhaps, to those of conventional students. Openness

to change and willingness to accommodate unique needs have been crucial. Unlike most conventional students, distance learning students do not need to present themselves on campus for registration, lectures and tutorials, or examinations. Distance learning students now experience greater flexibility across a range of issues, primarily because of a recognition of their conflicting personal commitments.

From a staffing point of view, openness to skills development and capacity building has been central to distance learning. Training in the design and writing of effective distance learning materials has been essential. Courses in website design and on-line learning have been invaluable.

Advances in technology have played no small role in accommodating the needs of distance learning students. These have been introduced gradually and fine-tuned as necessary. In 2002/2003, the use of Blackboard software was piloted on one module. It proved extremely effective as a supportive tool to the extent that students, in their feedback, have requested a dedicated website for their entire course. This is being provided from 2003/2004. The use of CD-ROM for course materials has also been piloted, giving students access to hyperlinks for browsing relevant websites. The ability of students to access timetables and results through the university website has been hugely welcomed by the distance learning students and is a resource that is widely used by them. Indeed the ease with which students have taken these new technologies on board has prompted the delivery of the new MBS in Co-operative and Social Enterprise entirely over the web, enabling true distance learning to be offered by the university anywhere in the world. The recent acquisition of mobile classrooms in the university is another new technological resource that will be usefully employed and reminds us that we need continuously to bear in mind the web access needs of mature students, particularly those who suffer from social disadvantage. Access to the web may also be possible for distance learning students through local libraries, credit unions, co-operatives, and other community development organisations.

For the most part, the existing structures have adapted well to accommodate the needs of distance learners. Fundamental challenges remain to be addressed more comprehensively, although discussions are on-going at a number of levels. The first of these relates to resource allocation for which interim structures are in place. This has implications at a number of levels, but particularly in the employment of staff. The second relates to the issue of credit accumulation. The introduction of such a system may help to improve access to university programmes by those distance learners who feel more comfortable breaking their learning into more manageable chunks.

Overall, our experiences of distance learning programmes have been positive and rewarding. At times, placing a distance learning student within the current university learning structures has been akin to forcing a square peg into a round hole. Over time, however, the hole is proving that it can be moulded in different ways to accommodate differently shaped pegs. Given the demographic decline in the numbers of conventional students seeking third level education, distance learning is likely to continue to grow in importance for the future of the university.

# CHAPTER 15

## THE STARS PROJECT: RESEARCH SKILLS TRAINING FOR UNDERGRADUATE RESEARCHERS

*John A Finn and Anne C Crook*

**Introduction**

The ability to conduct research is a valued attribute of higher education across many disciplines. In the final year of a research-based undergraduate degree, performance in the research project can often make the difference of a whole grade in the overall tally of degree results, with the final project grade often being determined by an individual summative assessment of the hardbound thesis. However, supervisors know only too well the perennial problems and mistakes that arise in undergraduate research projects. It concerned us that the culmination of undergraduate training so regularly reveals deficiencies in these types of basic research skills. This prompted us to ask 'is the importance of the final year research project reflected in the preparation that students receive for it?' More generally, is the importance and expected standard of research skills in higher education reflected in the curriculum of undergraduate degrees? And perhaps most importantly, how can we improve the learning of research skills?

**What are 'research skills'?**

Probably prompted by the learning-outcomes approach, we first posed the question 'what skills and abilities are needed to effectively conduct research?' Thus, by clarifying our understanding of the skills that students need to undertake a research project, we could then make progress on how to improve the research training provided to undergraduates (which may be very appropriate to postgraduate training also- typically, only a summer holiday differentiates an undergraduate and a new postgraduate!). We identified a relatively holistic and realistic set of research skills that include:

- Project management (planning, scheduling, goal-setting, time management, and effective communication between students and supervisors);
- The ability to conduct a literature review;
- The ability to generate and test hypotheses and to design appropriate experiments;
- The selection of appropriate sampling methodologies;
- Data analysis;
- Report writing;
- Data presentation (oral, poster, graphical, written);
- Interpretation of data and critical thinking;
- The ability to analyse, synthesise, and critically evaluate information.

This list is by no means exhaustive, but it greatly helped us to clarify what research skills we wanted students to learn during their undergraduate research training.

**The STARS project**

By identifying the variety of skills required to conduct scientific research and through a consideration of training needs, we were able to better define the aims and scope of the STARS project, and target the learning resources to address different research skills. A STARS was born! Funded by an Award for Innovative Forms of Teaching and Learning, the Scientific Training by Assignment for Research Students (STARS) project (http://www.ucc.ie/research/stars) is an internet-based learning resource designed to help undergraduate students develop a number of fundamental skills associated with conducting scientific research. In particular, it aims to improve the ability of students to plan, design, manage and execute scientific research whilst providing opportunities for formative assessment and rapid feedback. The latter point is especially relevant in those cases in which the project grade is only derived from a single summative assessment of the final hardbound thesis, in which there is no opportunity for a student to receive feedback and to improve his/her performance.

The STARS web site is divided into three sections: 'Useful Links', 'Short Activities' and 'Case Studies'. The 'Useful Links' section contains a variety of links to various educational websites, as well as providing more specific information on issues such as the *viva*, preparing posters and oral presentations etc. The 'Short Activities' section was designed to help students learn and develop a range of specific skills associated with scientific research, including: project management skills, writing, experimental design, data presentation and referencing. In this section of the website, skills are developed through the use of assignments that, in most cases, are provided with 'corrected' versions, thus providing immediate and specific feedback to students. The 'Case Studies' section was designed to help students learn how to integrate various research skills and to foster critical thinking. To achieve this, we have prepared a variety of case studies (equivalent to small research papers) and which have been written in such a way as to include deliberate errors (e.g. inappropriate sampling methodology, poor data presentation and inappropriate writing style etc.). In most cases, the associated assignments require students to identify these errors and to provide a critique of the case study, akin to a journal referee's report.

**Reflection**

*Pedagogical underpinning of STARS*
The design of STARS strives to adopt elements of an experiential learning cycle (Table 1). In particular, the STARS resource aims to create a series of problem-based learning resources that facilitate a deep understanding of the correct approaches to scientific research. Although difficult to articulate, there is great insight and understanding achieved by students when they are challenged with a problem and have to correctly choose and implement the appropriate research skill to address the problem: the educational equivalent of the 'no pain, no gain' principle!

One might then ask, why use a computer-based medium for STARS? Our essential criterion in assessing whether to use computer-aided learning or not was whether it could improve the learning environment for students; the use of multimedia has no magic effect *per se* on the enhancement of student learning (e.g. Heinich *et al.*, 1996) and it will obviously be important for us to evaluate the success of STARS. We would argue that by using resources, such as STARS, students are provided with opportunities to foster not only specific skills, such as data presentation, but also more generic skills, such as an increased competence in using IT. Nevertheless, we were aware of

the many pitfalls that can be encountered when creating computer-based learning resources and as a result, we have taken care to apply pedagogical principles that instruct good practice in more traditional forms of learning and teaching to the design of STARS. Such principles include:

◆ Provision of clearly stated learning outcomes;
◆ Use of a variety of learning and teaching methods;
◆ Use of a variety of formative and summative assessments that assess how well students have learned/performed the learning outcomes;
◆ Communication of expectations and standards to students;
◆ Provision of timely, relevant and constructive feedback on assessments;
◆ Encouragement of peer-assisted and student-centred learning.

Computer-aided resources such as STARS are likely to be maximally effective as learning aids if they are incorporated into appropriate module programmes where relevant training and guidance can be provided. Moreover, given the importance of assessment as a determinant of student learning behaviour, the successful use of STARS is crucially dependent on its integration into the appropriate types of assessment for a module. Only in this way can the potential learning benefits of these kinds of interactive resources be truly realised.

*Expectations and standards in research training*
The STARS resource raises a number of important questions in relation to science teaching and training in higher education. For example, are the expectations and standards of performance in STARS appropriate for undergraduate science degrees? Do undergraduate degrees have an excessive emphasis on the 'product' of science? It is difficult to answer these questions without a clear understanding of what educational aims a particular degree wishes to achieve. This raises yet more fundamental questions, such as: What standards of research skills does one expect of a BSc degree programme?; What is it that distinguishes degrees awarded in science from degrees awarded in other disciplines?; What differences are there in the research ability required at BSc, MSc and PhD levels?

The process of developing STARS has led us to ask whether, in terms of science education, there is perhaps a greater need for education that is centred on the *process* of science rather than the *product* of science? Put another way, perhaps there is an argument that science in higher education may focus too much on the teaching of knowledge (a body of facts) that is essentially the end product of the 'scientific method'. In a graduate marketplace that is increasingly competitive, perhaps there is now a greater need to consider the research skills that underpin the process of science, and that all science students should possess upon graduation. Note that many of these skills are not science-specific and may be transferred to a variety of different contexts, thus potentially increasing the diversity of careers that graduates may consider. Our hope is that is used in an appropriate learning environment that the design of STARS can help to foster a variety of scientific and generic skills that may better equip our graduates for life and careers after graduation.

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Further information on the pedagogical approach of the STARS project is available in an article to be published in the November 2003 edition of the Bioscience Education Electronic journal (http://bio.ltsn.ac.uk/journal/index.htm).

**Table 1. Identification of elements of experiential learning that may be achieved with the STARS learning resource.**

| Element Of Experiential Learning | Relevant Learning Opportunities Using STARS |
| --- | --- |
| New experiences | ◆ Provided by numerous assignments that examine a wide range of research skills<br>◆ Hyperlinks provided to other websites |
| Reflection; feedback | ◆ Facilitates individualistic pace of learning and reflection<br>◆ Priorities for reflection are suggested in several assignments<br>◆ Structured discussion with peers and lecturer provides reflection and responsive feedback<br>◆ Non-responsive but 'expert' feedback on many assignments is provided by STARS |
| Process ideas, take ownership of ideas | ◆ The skills that are developed in the Short Tasks section must be applied in Case Studies;<br>◆ Assignment- and problem-based learning, and peer discussions facilitate 'internalisation' of learning |
| Opportunity to make decisions, problem-solve and test implications in new situations | ◆ Students must decide on which of their repertoire of skills to select and apply to problems in Short Tasks and Case Studies<br>◆ Case Studies require identification of the problem and problem-solving skills<br>◆ As a final assignment (possibly assessed) individuals may create and present a Short Task;<br>◆ Groups may create and present a Case Study (these may be subsequently incorporated into STARS) |

# CHAPTER 16

## ENGLISH DEPARTMENT OUTREACH PROGRAMME: SUPPORTING EQUITY IN HIGHER EDUCATION

*Mary Breen*
*Department of English*

Students on the English Department's Outreach Programme in Caherciveen and Kenmare have begun their second year of study, having successfully completed year one of the Advanced Certificate in Arts. The forty eight students who sat end of year exams in summer 2003, achieved above average results for first year English students. From this group, forty five students registered for second year, three students relocated to Cork and have registered as full-time, mature students in the Faculty of Arts and, in addition, eight new participants have joined the outreach classes as occasional students.

This course began in response to repeated requests from three groups who had graduated from the Centre for Adult and Continuing Education's two year Diploma in Women's Studies. Having gained fifteen credits for the Diploma they wished to continue their academic careers, but could find no opportunities in their local area. The English Department responded by offering the Faculty of Arts night degree programme on an outreach basis. The course is taught at weekends in both centres, for about twelve weekends during the college year. Students attend UCC for seminars once each semester. During the first year of the course, eight members of staff travelled to the outreach centres to deliver their first year modules. The course represents a serious commitment on the part of the students, local groups and English Department staff.

The English Department has received substantial support from local groups in Kerry: free use of premises and computer facilities, a library grant of E17,000, local library facilities and bursaries for students experiencing difficulties with fees. There is strong and supportive co-operation between community-based formal and informal groups and the university. Without this level of co-operation the course could not run.

This course has attracted students from a wide variety of social and educational backgrounds. The age range is from twenty five to eighty two.. As currently organised, the substantial co-ordination and teaching workload involved in this course is marginal to mainstream college course development and teaching. This initiative is an interactive challenging process, an approach to teaching and learning in a non-hierarchical, community–based setting. As such, it has greatly enhanced not just the students' educational experience but also that of the lecturers. Traditional modes of delivery and expectations are constantly being challenged and new systems developed in response to student needs.

In the current national debate on higher education and in the many reports on third-level education such as the *Skilbeck Report*, the *White Paper on Adult Education*, and *Supporting Equity in Higher Education*, improved access to third-level has emerged as a main area of concern. Professor Malcolm Skilbeck's report "The University Challenged" commissioned by the HEA and

CHIU suggests that Irish universities need to "demonstrate a capacity to re-create themselves". He believes that failure to adapt and change could lead to "relative decline and marginalisation." To meet the challenges of the future, Skilbeck suggests that universities should:

1. Broaden and enlarge their student intake
2. Strengthen links and partnerships with the community
3. Adapt more flexible teaching to facilitate part-time study and help develop a commitment to adult education.

The concept of equality of opportunity in education is normally defined in terms of access, participation and achievement in the education of individuals who differ in gender, socio-economic background, geographical location or ethnic membership. Announcing a new OECD Review on the higher education sector to be published in summer 2004, the Minister for Education, Noel Dempsey T.D., highlighted access for those from disadvantaged backgrounds as one of the priorities. Disadvantage has in the past been very narrowly defined: it is most commonly understood to mean socially disadvantaged young people. Strategies to combat this type of educational disadvantage have been formulated and addressed and much financial aid is dedicated to this group, perhaps at the cost of less visible groups. OECD statistics show that the numbers of young people attending university are higher than ever, while figures for adults are very low: only 11% of those between the ages twenty five and sixty four hold degree level qualifications. The participation levels of mature students in higher education in Ireland is amongst the lowest in the OECD. There is a need to address issues of access to third-level for adults living outside urban centers who cannot relocate to centers where universities are located. It is commonplace to say that an educated older population has a profound effect on the wider community. Research has shown, for example, that a child's success in school is heavily dependent on the prior educational attainment levels and skills of his/her parents. This might help to explain why, despite the number of strategies employed to increase third-level participation among lower socio-economic groups, change has been so stubbornly slow. These measures have arguably been aimed at the wrong group.

**Issues raised by the introduction of this programme:**

1. Costs remain one of the main barriers to adult education. Outreach students do not qualify under current government guidelines for free third-level education. This situation is exacerbated by the fact that there has been a failure to implement a recommendation of the Government White Paper on Adult Education that fees should be abolished for part-time third-level students who are medical card holders or unemployed and their dependents.

2. The wholeheartedness with which University College Cork has supported this programme has changed the way in which the communities in both centres think about the University. Attitudes to the university sector are complex: on the one hand universities are seen as historic centres of great cultural power and attraction, while on the other, a common perception among the students on this course was that universities never reform themselves, have no regional engagement and are inflexible. The dearth of opportunities for people in rural Ireland hoping to access third-level education was an example of this in operation. The negative construction of the university has been challenged, at least where University College Cork is concerned, in Caherciveen and Kenmare.

3. The willingness of the University to support this programme has been met by the even greater willingness of local groups to provide support for both students and teachers.

4. Greater flexibility in credit accumulation and transfer is vital for the success of this programme and others like it. Institutional barriers need to be addressed where they exist for the benefit of organization and not for the benefit of the student.

When UCC was founded in 1845, it was intended as a college for all Munster, not just for Cork city. Given the scrutiny which the third level sector is currently undergoing, this is one area where we can make changes and meet the challenges of the future. Access lies at the heart of the debate on the future of the universities: how do we make third-level a reality for non traditional students, for those who because of their life circumstances will never be able to follow education to its urban enclaves? Professor Skilbeck concludes his arguments for change by stressing that the universities must reach out in a very practical way to the community. The English Department initiative is a very practical example of this in operation. The development of this programme has broadened and enlarged the student intake, increased the proportion of mature students and those from disadvantaged backgrounds and strengthened links and partnerships with industry and community. It has also developed a substantial amount of good will towards the University.

# CHAPTER 17

## EQUALITY OF OPPORTUNITY FOR STUDENTS
## AT UNIVERSITY COLLEGE CORK

*Aidan Moran*
*Registrar and Vice-President for Academic Affairs*

A commitment to equality of opportunity is an explicit part of the goals of University College Cork. It is a commitment which the university, with the support of the HEA and the Department of Education and Science, is honouring with a significant allocation of resources as this overview of UCC's pro-active approach in widening access and providing subsequent support will show.

Diversity in student backgrounds has many aspects including gender, age and nationality. While this diversity is matched by a corresponding range of responses by UCC, this article will concentrate on what is been done to broaden access to the university and to support students who have been under-represented in the past in terms of socio-economic background, disability or age.

The UCC Access Programme for school leavers is directed at attracting students from disadvantaged backgrounds to UCC or higher education in general and has been in operation since 1996. The Admissions Office has a dedicated Access Officer who manages the programme and works in close collaboration with relevant schools and communities. It began in Cork City with nine schools with special designation from the Department of Education and Science for their work for disadvantaged students. The Programme now involves all twenty two schools in Cork and Kerry as well as the three Colleges of Further Education in Cork City.

The Access Programme which is multi-faceted and designed to maximise points of contacts between students, parents, teachers and schools with the university, includes an Easter School, Summer camps in IT and Science, drama workshops, awards ceremonies for schools held in UCC attended by pupils, parents and teachers as well as supplementary teaching and supervised study. A special admissions procedure involving reserved places is available to eligible students who qualify under the Access Programme and the numbers of such students admitted has grown from just two in 1998 to seventy-eight in 2002. This has required a significant expansion in the range and scope of post-entry support for students which is provided by UCC. Feedback from participants at all levels has been very positive and the graduates now resulting from the Access programme are proof positive of its success. While the Access programmes is focussed on increasing participation in higher education it is supported by a major research project entitled Bridging the Gap managed by the Department of Education at UCC. This is directed at enhancing the school experience at both primary and secondary so that pupils from disadvantaged backgrounds stay in full-time education and achieve their full potential.

UCC has taken a national lead in opening routes for students to access the university by recognition of courses other than the Leaving Certificate as a basis for entry to degree programmes. Rather than develop access courses of its own UCC has worked closely with schools and colleges to recognise courses which can ensure some students access to UCC and at the same time help all

students acquire a qualification with national recognition in own right. FETAC qualifications in particular feature highly in this regard and are recognised by UCC for both access purposes and competitive entry.

The Disability Support Service at UCC owes its foundation in 1987 to a team of volunteers that came together to support a blind student through a degree programme. This volunteer tradition involving both staff and students continues and enables a small core of dedicated staff provide one of the most comprehensive disability support services in the country. Over 300 students with disabilities are now registered with the Disability Support Service. Users of the service include students with vision or hearing impairment, mobility difficulties, significant on-going illness as well as students with specific learning disabilities such as dyslexia. It should be noted that the vast majority of these students gain entry through normal competition through the CAO system. A limited number of additional ex-quota places are allocated by a Special Admissions Board each year.

A major principle of disability support policy at UCC is one of maximum integration with the general student population with the most recent advance in that regard being the development of an integrated sport and recreation programme in the university. The supports available to students reflect the range of disabilities involved and include a transport service provided in cooperation with the Irish Wheelchair Association, sign language interpreters, additional subject specific tuition, dyslexia support, alternative examination arrangements, provision of information in alternative media formats such as tape and Braille materials and electronic guiding units throughout the campus.

The Disability Support Service is equipped with a comprehensive range of assistive technologies to suit all categories of disability, and acts as a regional resource centre for the schools and the wider community. Assessment and training in AT and ECDL training and certification is also provided for all students with disabilities registered with the Disability Support Service. A career management programme informs students with disabilities in the important choice of their field of study and helps them on graduation in making a successful transition to the world of work. A Steering Group including both staff and students with disabilities guide the work of the Disability Support Service and reviews on an on-going basis the general provision of supports for people with disabilities on the campus. The significant number of international students taking courses at UCC includes some with disabilities which reflects well on the level of support offered and the sense of welcome that such students receive.

The university has reserved quotas for mature students in virtually all faculties. In addition to its evening degree programmes in Arts, Law and Environment Studies, UCC has almost doubled the number of places reserved for mature students on its full-time day programmes from 160 to 300 over the last six years. It is planned to increase this provision further. The largest entry quota for mature students is in the Faculty of Arts, where in response to considerable demand, over 150 places or over 15% of the annual intake first year is now reserved for mature students. Conventional entry requirements in terms of formal qualifications do not apply to students over the age of 23 years. There are over 900 mature students enrolled in degree programmes alone in UCC and their record of achievement is excellent. In recognition of their particular needs the university has appointed a full-time Mature Student Officer to advise prospective students, provide an orientation programme for new entrants and offer on-going support during their degree.

UCC has a long tradition of creating educational opportunities for adult learners through partnership with local communities. The Centre for Adult Continuing Education is particularly active in promoting adult learning as a strategy for combating social exclusion and more specifically encouraging participation in higher education. Some students are enrolled with the Centre. In addition to a broad programme in continuing education which includes professionally accredited qualifications, the Centre provides a graduated series of Certificate and Diploma course designed to enable the adult learner make a successful transition to degree programmes. A particular focus of the Centre is programmes developed in partnership with socially disadvantaged communities. These communities supply local neighbourhood premises, childcare facilities and mentors to support of the work of the Centre. Credits earned on Diploma courses can be used towards first year degree studies. The Guide to Life Long Learning published by the Centre describes the full range of programmes, student services and support systems offered to adult learners at UCC. The Centre provides Course Readers specifically designed to meet the needs of adult learners in its some 40 outreach centres dedicated to adult community education. A B.Soc.Sc.degree in Youth and Community Work is offered by the Department of Applied Social Studies.

Within the broad programmes outlined above there are particular initiatives focussed on specific minority groups such as travellers and refugees and asylum seekers. As a community UCC aims be a place where diversity is respected and individuals and groups can learn from one another. It believes that fairness and mutual respect create a climate that is conducive to the free and open exchange of ideas and that all students should have a fair opportunity to achieve their full potential.

# CHAPTER 18

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## 'BRIDGING THE GAP' BETWEEN UNIVERSITY COLLEGE CORK
## AND SCHOOLS IN CORK CITY

*Tracey Connolly*
*Manager of the Bridging the Gap Project*

This paper will look at the important role that UCC has played in Cork city disadvantaged communities, as has been the experience through the Bridging the Gap project.

**Background**

Bridging the Gap is a five-year project, which commenced in 2001, and is aimed at tackling educational disadvantage in Cork city. As the name of the project suggests it aims to bridge a gap, namely the gap between the educational experiences of pupils in the less advantaged areas and the educational experiences of their peers in more advantaged areas of Cork city. There are 42 Cork city schools participating in the project (32 primary and 10 post-primary).

Much inspiration for the project was taken from a project called The Berkeley Pledge, which was run in the University of California at Berkeley (UCB) in the 1990s. Through The Berkeley Pledge, UCB worked with local deprived communities to support pupils to succeed in education. UCB staff and students assisted specific schools to run curricular-based programmes in addition to mentoring programmes in literacy and numeracy, which were facilitated by university students. Bridging the Gap is also university based and operates from the Department of Education in University College Cork (UCC). Professor Áine Hyland (Vice President and Professor of Education) is the project director and I am the project manager.

Two thirds of the funding for the project was secured from private donors, while the Department of Education and Science have provided the remaining one third. The project is the first of its kind in Ireland and the fact that private donors provide two thirds of the funding makes it a unique project of its kind.

The overall aim of Bridging the Gap is to support pupils to have a positive and rewarding experience of schooling. In addition to this, the project aims to link the various national initiatives operating in Cork and the local stakeholders in education to create a co-ordinated approach to education. It aims to form networks of teachers and other workers with a brief around education. Like The Berkeley Pledge, Bridging the Gap holds the potential to link the University with schools in disadvantaged areas and to extend its community mission.

Bridging the Gap has five operational strands as follows:

*1.    School-based projects*
Schools involved in the project can apply to Bridging the Gap for funding to run school-based projects. Through consultation with the school community – teachers, parents and often pupils –

a school sets its own project goals. Projects are documented and monitored by the individual schools, thus schools take ownership of their work.

### 2.   *Professional Development*
As the project is concerned with enhancing the quality of teaching, regular in-service events are held for teachers. Teachers suggest many of the subjects and many of the in-service courses are provided by people with close ties to the project.

### 3.   *Networks*
Principals and teachers have formed networks on relevant topics and together they are sharing experience and building on good practice. Networks between schools and stakeholders in education are being built on topics of interest identified in collaboration with participants and are facilitated by the project, thus enabling community relations to develop between those working in the education field.

### 4.   *Dissemination*
The media used to convey good practice includes the website (http://bridgingthegap.ucc.ie) and an annual evaluation report which is circulated to all of the schools and stakeholders within the project.

### 5.   *Research*
Staff from 5 different schools involved in the project are currently undertaking post-graduate research in the Department of Education, UCC in research areas identified by the schools.

**The first year of Bridging the Gap 2001-2002**

During its first year, Bridging the Gap focused most of its energy on building its foundation in developing relationships with the schools involved in the project. However the link between the project and UCC started to evolve during the year.

As a university based initiative, Bridging the Gap is well placed to draw on the wide range of expertise within the university, particularly for professional development. Much support during the first year was received from the Department of Education in the area of Multiple Intelligences theory and Teaching for Understanding. This encouraged teachers to look at new methods of teaching and of student learning. To further this learning, in the summer of 2002, Bridging the Gap granted scholarships to 5 principals to attend the week long Project Zero Summer Institute at Harvard Graduate School of Education in Boston, USA. The institute focuses on the theory of Multiple Intelligences and Teaching for Understanding and is facilitated by experts in the field – Howard Gardiner and David Perkins. The UCC Access Programme, funded a further two scholarships for principals of these post-primary schools, enabling a total of seven school principals to attend the institute.

A number of schools had decided to focus on Music as their school-based project during the year and Bridging the Gap drew on the expertise of the UCC Music Department, whose Professor, David Cox chaired a professional development session on music in the classroom.

During the first year, all professional development events were held in the university. For the

majority of the primary school principals and teachers, attending seminars in UCC was a new experience. UCC was unfamiliar to many of them, as they had received their third level education elsewhere, usually in either Limerick or Dublin. Some primary school principals and teachers acknowledged that although they were living and working in Cork city, they had no great inclination to visit UCC as they saw it as 'a place apart'. Within the first year of the project more of the teachers began to consider themselves part of the community of UCC through Bridging the Gap and UCC was becoming part of their school community. With this in mind, it was decided to bring pupils into the university for visits, so that they too would become familiar with UCC.

In May 2002 the President of UCC, Professor G. Wrixon, invited the UCC heads of departments to the launch of Bridging the Gap in UCC. At the launch the President stated the university's support for the project and he encouraged the departments to support the project in carrying out activities with schools. Anita Madrid, Director of the Berkeley Pledge spoke at the launch and shared examples from the Berkeley Pledge as to how UCC might offer support to schools, such as facilitating school projects. The heads of departments were enthusiastic in their support of Bridging the Gap.

The final link between the project and UCC during the first year of the project was in June 2002. Two concerts performed by the Cork Pops Orchestra, were organised, and were held in the Boole 4 lecture theatre. Seven hundred 4th class pupils from the primary schools in the project attended the concerts. For the majority of these pupils, this was their first visit to UCC, despite the fact that so many live and go to school so close to UCC. Some interesting conversations were overheard between pupils during the visit such as 'when I grow up I am definitely going to go to school here!' It was amusing to listen to the pupils, who sat at the front of the lecture theatre, debate about who usually sat on those seats and why. It was finally concluded that 'the seats are for the judges whenever there are competitions and during lectures the seats were for the brainy students!' From these statements alone, it was quite clear that the visit to the university had an impact on these pupils. The *Evening Echo* wrote an article on the concert and published photographs of the pupils. The article highlighted the opportunity presented to the pupils to get a flavour of the university and explore how it differed from school.

A month or so after the concert, on a walk across campus, I was stopped by two young girls who were sitting on a kerb having a picnic of crisps and lemonade alongside their bikes. The two girls remembered me, as their class had attended one of the concerts. They stopped me to thank me profusely for 'letting us come to UCC and arranging the concert' and that since then they had 'spent more time listening to our teacher and doing homework, so that we can come here when we grow up'. I was delighted by the encounter and it clearly showed that these pupils felt that UCC was a place where, for the present, they could sit and eat their crisps and drink their lemonade, and a place that they could aim to get to by listening to their teacher and doing their homework.

**The second year of Bridging the Gap 2002-2003**

In the second year of Bridging the Gap, there was an increase in UCC staff support for schools and more departments and individuals became directly involved in school activities.

In October 2002, an email inviting UCC staff to become involved in Bridging the Gap was sent to all exchange users. Following this email, UCC staff from 28 different departments indicated an interest in being involved and in November 2002 a briefing session was held for these interested

staff members. In the session the possibilities of forming networks between the university and schools were discussed. It was clear that there was a lot of staff support for the project and much potential to further develop university/school partnerships.

Pupils from a post-primary school in Bridging the Gap undertook a number of science projects for the Young Scientist of the Year Competition 2003. At the request of some of these pupils, assistance with the projects was sought from staff in the science and engineering faculties. There was a generous response to this email, with advice and offers of support coming from staff members across 8 different departments – chemical engineering, electrical engineering, zoology, geology, chemistry, physiology, education, and civil engineering. This initiative culminated in January 2004 with a major success for one of the pupils, who was awarded Second Prize in one of the national competitions.

During the year, another school was involved in a history project and pupils were anxious to make contact with the History Department. Again help was forthcoming from a member of staff who provided advice and reference materials. Again this was a very positive experience.

In November 2002, the first of what has become a regular occurrence – visits to the campus by parents – was organised. The first visit was for a group of 25 parents who were involved in paired-reading programmes in two of the Bridging the Gap primary schools. None of these parents had ever been on the UCC campus before. In the course of the visit, one parent asked me a number of times if I was sure that the group were allowed to walk around UCC!

A visit to the University by fifty pupils from two Gaelscoileanna, was organized in April 2003 by Ionad na Gaeilge Labharta. The visit was conducted in Irish and the pupils were accompanied by teachers, principals and parents. The pupils visited various locations around campus including the library, the Honan Chapel, the Printing Office, Campus Radio and the Language Centre. The mobile classroom (with wireless laptops) in Ionad na Gaeilge Labharta was of particular interest to pupils.

In the course of the pupils' visit, I was surprised to be asked by an eager pupil with a great interest in science if Einstein had studied in UCC. The pupil informed me that he was planning to study science in UCC and that it would be great if Einstein had studied there. The pupil was not put off when I told him that Einstein had not studied in UCC, and he replied 'not to worry' as he was 'sure that there was other great scientists that had studied in UCC'.

In June 2003, Bridging the Gap held showcasing events in the Devere Hall at UCC. A total of 1,200 primary school pupils performed at the event. The performances were a showcase of the work undertaken in school-based projects, which were funded by Bridging the Gap. So large were the numbers performing that four events were held over two days. The objective of the showcase was to display and celebrate the pupils' talents and learning experiences. Performances included mime, dance, music, choral singing, drama and film. As with the other pupil visits to UCC, the showcase presented an opportunity to again open the doors of UCC for pupils. Guests at the showcasing events included the Chancellor of the National University of Ireland, Dr. Garrett Fitzgerald; the Chairman of the Governing Body of UCC, Professor Enda McDonagh; the President of UCC, Professor G.T. Wrixon; Assistant Chief Inspector of the Department of Education and Science, Seán Ó Floinn; the national Director of Programmes for Educational Disadvantage, Maura Grant and the Lord Mayor of Cork, Cllr. J. Kelleher.Dr. Fitgerald wrote an

article on the success of the showcase, which was subsequently published in the *Irish Times*. Dr. Fitzgerald commended the operation of the project in drawing on 'skills available among both staff and students at the university, in this way introducing school pupils to its facilities and grounds; an arrangement that makes the idea of going on to third-level much less intimidating for children from disadvantaged areas'.

In September 2003, UCC became the Sunday Times Irish University of the Year; the work of Bridging the Gap was commended by the newspaper for its work in 'bringing educational opportunities to students in disadvantaged areas of Cork city'.

**To the future**

In the remaining 3 years of the project, Bridging the Gap intends to build on the good practice that has already emerged from the project. The project plans to facilitate schools in taking up the offers of support from UCC staff and departments and to continue visits for pupils and parents to UCC. In all strands of the project, UCC staff can have a positive influence. The unique aspect of Bridging the Gap is the close link with UCC staff and this hold much potential to fulfil the university's community mission and also 'bridge the gap' between schools and the university. This is something that is suggested in the UCC coat of arms: *'Where Finbarr taught, let Munster learn'*

# CHAPTER 19

## ACHIEVING THE FÁS EXCELLENCE THROUGH PEOPLE AWARD

*Maeve Lankford*
*Manager, Training and Development Unit*

A key feature of any learning organisation is the explicit acknowledgment of enduring and continuous change and adaptation as the only means to survive and thrive in any sector or marketplace. The evolution of training and development policies, procedures and structures in UCC has always been one of change and adaptation. The University has long had many policies and procedures in place which, while probably typical of a University, are the envy of many organisations: Paid Study and Examination Leave; Paid and Unpaid Sabbatical Leave; Financial support for courses leading to professional and/or academic qualifications; Paid Training Leave; the Academic Travel Grant which provides financial support to academic staff to attend conferences and other developmental opportunities. UCC was also the first Irish University to establish a Teaching Development Unit in the early 1980s and has continued to provide support to those staff engaged in teaching and learning by creative and innovative means, many of which are highlighted in this publication. The University has also managed to facilitate a diversity of committees and units which design, deliver and review training in an impressive array of areas including Computing and Learning Technologies, Health and Safety, Language skills, including the Irish Language, as well as focusing recent efforts on establishing a central Training and Development Unit within the Department of Human Resources, which delivers training in such areas as: Induction; Personal Development; Management and Leadership Development; Organisational Change and Development.

The current Department of Human Resources in UCC has had the following mission since its establishment in 1999: "*To contribute to the development of the University as a high quality institution through the development and implementation of human resource policies and programmes aimed at enhancing individual and organizational effectiveness.*" A significant aspect of implementing this mission has been the expansion of training and development initiatives and infrastructure to support employees. To this end, the calendar of training offered to all employees on an annual basis has been substantially expanded over the past few years, not least as a result of successful bidding for external funding. A dedicated training room was identified and improved equipment and training resources were made available within the organisation. Throughout this growth phase, the Training and Development Unit worked cooperatively with other committees and units involved in the design and delivery of training including: The Staff Enhancement and Development committee of the Academic Council; The Equality Committee, The Quality Promotion Unit, the Health and Safety Office, The Computer Training Centre, Oifig na Gaeilge Labhartha and the Language Centre. Through the concerted effort of all involved, the quality and extent of training and development opportunities for staff at UCC expanded greatly during this period.

While such progress was impressive and very well received, the staff of the Training and Development Unit were keen to evaluate progress to date and to find an appropriate tool to assist in providing on-going focus and continuous improvement of the training function. The FÁS

Excellence Through People standard provided an appropriate structure and method to undertake such benchmarking.

Excellence Through People is Ireland's national standard for human resource development. The purpose of this standard is to encourage organizations to strive for excellence through training, development and involvement of its staff. Achievement of the standard acts as a quality assurance indicator that an organization is doing the right things to enable its staff achieve their potential, and provides a focus for future improvements.

Assessment for the award includes an examination of each of the following six areas:

1. Review of Organisation Plan and Objectives
2. Organisation Training Plans
3. Review of Training
4. Implementation of Training
5. Training and Development Records
6. Employee Communications and Involvement

**The Excellence Through People Model**
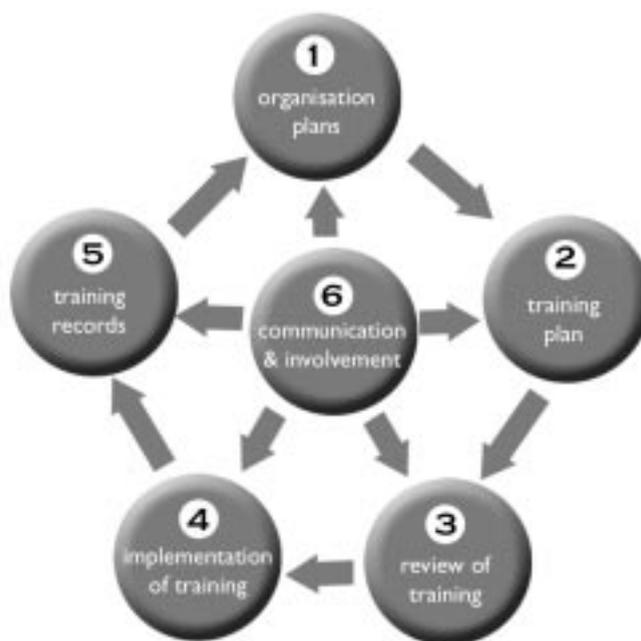


In order to achieve "Excellence Through People" Certification, organisations must satisfy the requirements in all six areas. Certification is granted for a period of one year, and organizations require annual re-assessments by FÁS to maintain certification. In this way, the organisation is required to focus on a continuous improvement cycle.

The features of the Excellence Through People model include many aspects which support the creation and sustenance of a learning organisation: on-going review and evaluation, understanding of the organisation and its environment and an ability to adapt and change. The process stimulates staff involvement and improved communication throughout the organisation, also features of the learning organisation.

The Training and Development Unit established an Excellence Through People Committee representing all staff categories early in 2002. This Committee provided advice and guidance in completing the application form and communicating the initiative to all staff. Assessment against the standard commenced with the submission of the completed application and also involved a two-day on-site visit by FÁS Assessors during which the assessors met with senior management and a representative number of staff (10%) comprising all staff categories. It was considered a significant achievement for the University when the Standard was awarded in July 2002. UCC is the only Irish University to be awarded the standard.

Some of the perceived benefits to employees in organisations which achieve the Excellence Through People standard include: better communication and involvement, better skills and continuous self-development. Such outcomes are also indicators of a learning organisation. Other positive outcomes include increased job satisfaction and morale and recognition of employees.

As a result of this process, the following priorities have been identified for the immediate future: to further engage staff in the strategic planning and review process, to formalise the policy framework in relation to training and internal communications, respectively, and to develop a system for identifying individual training needs on a more formal basis. The Training and Development Unit is also working on computerising its records, improving access to such records and is seeking to accredit more of the training courses offered so that staff who participate will acquire formal certification. These goals certainly provide a focus for the future development of training and development activities in UCC. The annual review, which is part of the Award process, will continue to keep us focused on progress against these goals and on identifying new goals. In this way we continue to grow and develop, improving training and development opportunities for staff and contributing to the culture of UCC as a learning organisation.

# CHAPTER 20

## THE CHALLENGE OF MANAGING CHANGE IN A UNIVERSITY

*Éamonn Sweeney*

### Introduction

The distinguished American academic, Sheldon Rothblatt, in his essay on higher education, based on a series of intellectual voyages around John Henry Newman's 'Idea of a University', wrote,

> For many centuries universities have exercised a disconcerting aesthetic and moral hold on the imagination of European and American societies. Universities' histories are full of promise, full of disappointments, but always, like the open ovals of the seventeenth-century astronomers, pointing beyond themselves. The result resembles the one described by Thucydides as he pondered the essence of his native Attica. Athens, reflected the exiled narrator, was born to have no rest. It would also give none to others.

Third level education is a great asset, both to the individual and the nation and universities should be rightly proud of their past achievements and contributions to society and the national economy. The knowledge, skills and research developed through the process of third level education are significant factors in the success of Ireland as a nation, in creating jobs and prosperity. Universities play a key role in expanding opportunity and in promoting social justice. As global competition increases, so does the importance of ensuring that the knowledge that universities create and accumulate is applied for the economic and social benefit of all, and especially within their surrounding communities. The traditional structure and funding of third level education, with an emphasis on staff-student contact is no longer adequate. Within many universities throughout the world there are no longer enough lecturers, library books, computers or rooms, and there is not enough time. Universities have no choice but to do things differently and to do different things. However, past success will not deliver the solutions for tomorrow's world.

Change is everywhere. Social, political, economic and technical change has created a turbulent and dynamic global business environment for universities and yesterday's assumptions and practices may no longer work. Universities cannot therefore be constantly managed by replicating yesterday's practices to achieve success. They will need to focus on options that will deliver the future rather than tinkering with structures that have delivered in the past. It is however an exciting time, a time of great opportunities for those who can identify and embrace change, but it is also a time of great threat and fear for many. Some people, and some organizations thrive on change; they welcome the challenges as a source of enormous energy to drive them forward. Some people, and some organizations, fall apart in the face of change; they seemed well organized until something changes in their environment. In reality, change should represent nothing new to universities. Through their core activities of quality teaching and research, universities have throughout history, demonstrated that they are major agents of change. Within third level

education there must be innovation, and innovation means change.

In common with other public sector institutions, universities have a number of strong interest groups that make achieving change a time-consuming and complex task. Anyone who works in third level will know of the tensions that can exist between the need of institutional managers to respond to external pressures to change institutional priorities and practices and the need to preserve the stability of the academic culture. Managing change in a university is not easy, however it is essential, that universities, along with other public sector institutions, seek to maintain the three 'Es' of efficiency, effectiveness and economy. For UCC, as with other universities in the State, the challenge has been to turn the vision contained in the Strategic Plan, into a reality: to manage the change process through the organization's most important asset, the people who make up the university, academic, managerial and administrative.

**The Changing Role of Third Level Education**

Learning and teaching are at the heart of third level education. They are a core activity for all universities, and feature strongly in the public perception of the sector's role and achievements. In a competitive and volatile global environment, universities need to seize every opportunity to build on their individual and collective strengths to ensure that they achieve and sustain excellence in all aspects of teaching, research and knowledge transfer. The realization of the significant contribution that universities can make to supporting the development of a modern economy and benefiting society in a wide variety of ways must be built upon by the way in which universities embrace and manage change.

The role of third level education is changing dramatically, based on the different expectations of society, government, employers, students, staff and a powerful combination of change forces bearing down on public education, including:

◆ rapid increase in competition from other providers domestically and internationally;
◆ A significant decrease in traditional funding from government sources;
◆ Greater government scrutiny;
◆ An increased drive for 'value for money
◆ A focus on quality assurance
◆ A growing consumer rights' movement. Students have much greater expectations of the quality and professionalism in the provision of education, convenience of delivery, value of their study to their careers, value for money and high academic standards;
◆ The rapid spread of ICT into every aspect of our lives, including education and training. Whereas universities once held a monopoly on high quality, up-to-date knowledge, that is now available (for a price) on the web from all manner of providers. As universities scale up the use of ICT in their learning programs, a range of important equity and access issues are emerging. It is clear, for example, that doing so may very well further disadvantage the disadvantaged.

In combination, these change forces have brought universities to a watershed. It is being argued by some that, if universities don't respond appropriately, their very existence, at least in their present form, is under threat. Thus the need to embrace change proactively and to be in control of the reshaping of university education is not an option, but an imperative. To a certain extent, one could argue that the Universities Act 1997, by assigning CEO status to University President, with all of the legal attributes that one associates with such a post, pre-empted the need for

Universities to change within a changing funding and commercial framework. Within the context of the Universities Act 1997 the accelerating pressures for change are likely to lead over time to the development of a third level education sector which is significantly different, in its structure, organisation and approach, to that which currently exists. Universities need to consider now how they will respond, individually and collectively, to the challenges that change of this order will present.

In the 21st century no university can operate in isolation from the global context. Universities need to consider everything they do as a sector in a global and not just a local or national context. The standards they apply need to be ones of global and not just local or national excellence. There is widespread recognition that third level education lies at the heart of the knowledge-based economy. This responsibility means that universities must respond to an increasingly large number of stakeholders, including students, parents, employers, local and regional communities and Government. All these stakeholders believe they have a legitimate claim on influencing the activities and priorities of third level education. The increased emphasis on becoming much more customer focused in everything that universities do is here to stay. The current OECD review of third level education through its terms of reference is mandated to identify areas of potential change within third level education in Ireland.

University level education is more extensive than ever before, placing greater emphasis on responsibilities, and choices on university leaders. Teaching and research will remain the core activities for all universities, however their emphasis, nature and methods of delivery will change in response to the needs of students, employers, and the sponsors of research. The emphasis will increasingly be on knowledge transfer. Universities will make a significant contribution to regional development and regeneration, and strengthening links with the community and business will run in parallel with the core activities, particularly as mainstream activities need funding support.

The changing international role of universities in the 21st century were clearly set out in the Skilbeck (*The University Challenged* 2001) report and also in the Dearing Report (*Higher Education in the Learning Society* 1997). Key area of change were identified as:

◆ Lifelong learning
◆ Creation and support of a learning society
◆ Regional economic development
◆ Pure research and scholarship
◆ Technological Innovation,
◆ Social cohesion
◆ Public accountability
◆ Increased demand for access to Higher Education
◆ Insistence by government and employers on more economically and socially responsive education and research
◆ Pressure to improve quality and achieve higher overall standards
◆ Changing fiscal policies and priorities for public expenditure
◆ Requirements to improve efficiency and raise productivity
◆ A progressive shift from formal, institution-bound teaching to technology facilitated learning

The combination of economics, technology and globalization create a potent change catalyst. The dilemma that Universities face is not that they would wish to deny the importance of any of these

potential changes, but rather that no institution is funded sufficiently to pursue all these activities simultaneously at global levels of excellence. If one accepts that view, then one proceeds logically to the notion that universities will have to recognise that they cannot all meet the full range of customer and stakeholder needs. They must seek out their comparative advantage rather than trying to do everything. They must work to build on their chosen areas of strength, and in collaboration with other providers, so that the sector as a whole continues to deliver all that is required of it. In simple terms, universities must respond proactively to change, which is both incremental and discontinuous change.

International competition and the increasingly diverse requirements of students, employers, government and other stakeholders will require change in the way university education is funded, managed and delivered. Third level education in the future will be significantly different in its structure, organisation and delivery. Institutions will become more diverse and increasingly interconnected. Universities will play to their strengths and recognise that there are some things that other institutions can do better. Increasingly the sector will face challenges, which are most effectively met by collaboration between institutions with complementary strengths. Limited resources should be directed to where they can be used to the best advantage. Tomorrow's universities will need to be increasingly diverse, flexible and adaptable. Universities should be at the heart of a truly competitive knowledge-based economy and an open inclusive society.

One of the greatest changes universities are likely to face is the challenge to traditional university education. Lifelong learning, the continued acquisition of knowledge and skills from cradle to grave, is rapidly turning education from a single life episode to a lifetime experience. This will require new types of courses and methods of delivery in order to provide education and top-up skills and knowledge where and when they are needed. A number of key strategic aims will emerge:

◆ Widening participation and fair access is seen as crucial in raising aspirations, creating opportunities for individuals, and providing social and economic benefits to society;
◆ Enhancing excellence in learning and teaching - All institutions will be expected to sustain high-quality learning and teaching and to undertake scholarship to support this;
◆ Enhancing excellence in research - A dynamic, world-class research sector is vital to the health of universities and crucial to economic growth and social cohesion. All higher education institutions will be able to undertake research, selectively and funded from a variety of sources. Sustaining our research base against global competition means we must recognise and support truly excellent research financially, and foster effective collaboration;
◆ Enhancing the contribution of higher education to the economy and society.
◆ Internationalization of education - The Bologna declaration may well have widespread implications for the future of Irish third level education and quality standards within a European perspective. Universities need to work towards a coherent set of policy objectives and key principles that could guide us in our future engagement with Europe, and indeed the Bologna Process.

**Responding to Change**

Change has become a major theme of leadership literature for a good reason. Leaders create the direction; they define the context, and help produce coherence for their organizations as change is negotiated and managed. University leaders manage the organizational culture, or at least the

vehicles through which that culture is expressed, they set the parameters for change, collaboration, autonomy, and the sharing of knowledge and ideas. They give tangible meaning to events that otherwise appear random and chaotic. A leader also inspires voluntary behavior, the degree of effort, innovation, and entrepreneurship with which employees embrace opportunities and change. Increasingly, the assets that cannot be controlled by rule are most critical to success within universities. People's ideas, their commitment to high standards of competence, their professionalism and their relationship with colleagues are what set great universities apart from the rest. Leaders can enhance all these requirements, but they cannot mandate them.

The last decade brought great acceleration in change, and the years ahead will bring even more. Increasingly this momentum for change has come from developments in the external environment, the environment in which universities must survive and thrive. Thus, anticipating and responding to change is a major responsibility for all universities. Although changes may seem to appear without warning, experience shows this is rarely the case. Unfortunately, universities often disregard or misinterpret the signals of change. They tend to spend time on issues perceived to be most important at a particular moment in time and frequently fail to scan the environment for changes that are in the early stages of development. The flood of problems that force universities into crisis management makes concern for emerging issues appear to be a luxury rather than a necessity. Even though the signals of change are available, separating them from the tremendous amount of available information is almost overwhelming. Another difficulty lies in the human characteristic of not seeing what we do not want to see. Universities, or managers / academics block out information that forces them to rethink ideas, opinions, and attitudes, or that forces them to adapt to change. Missing important signals of impending change is a natural consequence of the way they conduct their daily affairs. Since most universities have no formal scanning function to look at the external environment, they implicitly rely on the information flowing to their managers and administrators.

## Managing change in a University

Change does not just happen - it must be led. It is important to keep in mind, however, that the most important change leaders are not only managers. In fact everyone can be a leader of change in his or her own area of expertise.

Sun Tzu, in the 2500-year-old classic 'The Art Of War', declares that "there is no invariable strategic advantage, no invariable position which can be relied upon at all times". As in warfare, there is no textbook process for dealing with change, there is no enduring and reliable strategy. However, there are certain fundamental ideas that can help universities to think about their situations and to structure their response. Given the unique organizational and cultural nature of universities there can be no prescriptive way of managing the change process. There are however models of best practice within the industry from which guidelines can be drawn. It is from an analysis of best practice that the best examples of managing change and managing people through the change process in a university will come, in the knowledge that understanding, managing and coping with change clearly involves more than minor procedural adjustments in the workplace. It is to do with issues of structure, strategy and personality and above all, organisational culture.

Change needs to be managed in order to derive maximum benefit from new opportunities and to avoid reactive situations. The faster the speed of change the more difficult and stressful it is to

manage and the more potentially stressful it is for those who are being managed. The skills and style of managers become increasingly important. Taking what looks like a potentially relevant, desirable and feasible change idea and making it work in practice is by far the hardest part of the quality improvement and innovation process. The strategic development priorities of organisations can only be achieved in practice if the individuals responsible for their implementation are willing and enabled to learn how to do them. Conversely, as people adapt to day-to-day changes in their operating environment they help create the material for organisational learning. As Toffler succinctly states: "The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn."

Effective organisational change is likely to be achieved when it is in line with the organisational paradigm and the cultural, social and political norms of organisational life. The problems begin when radical change – such as that associated with Business Process Re-engineering – attempts to take people away from the 'core beliefs': 'the way we do things around here'. Thus incremental change is more likely to succeed as it entails minimal disruption to the paradigm. This seems to be particularly the case in universities where successful change tends to be of an organic nature: it does not go against the grain. The professional status of academics is an important feature of the organisational culture. The notion of academic freedom is ever present. Achieving a situation where academic and support staff are in agreement with change is a far from easy task. However, managing change successfully, ultimately depends upon understood and shared values and objectives, for the managers and the managed.

Powerful academic management has to be convinced of the benefits of change; any restructuring of the organisation is likely to be viewed as an encroachment. Managerial hierarchies cannot just not recognised in the same way as they might be in the private sector: academics are as likely to identify with fellow academics in the same discipline in another institution, as they are with a management structure in their own department.

Organizational cultural factors, such as academic freedom, and a decentralized management structure, are still significant factors for those implementing the change process. Desired business results are a powerful driver of change. They can shift the perceptions of a particular change effort from a "nice to do" to a "must do." Consequently, a key area of inquiry is determining how the change will help meet business objectives and whether there is alignment on this among the leaders. Consistent understanding of why the change is occurring and what benefits it will bring is essential to generating enterprise-wide support.

By making change seem like a bounded, defined, controlled, and discrete process with guidelines for success, the writing on change misleads managers who will find the reality far more daunting than they expected. Change does not occur by following a well defined path; rather it is a difficult journey toward an elusive goal with many potential wrong turns and missed opportunities. Only rarely does an organisation know exactly where it is going and how to get there. No matter how much thought has gone into the change effort, there will be unforeseen external, uncontrollable and powerful forces that will have a profound impact on the success of the change effort.

**Conclusion**

Managing change in a university is a complex process to which there are no simple answers. In the

words of Galileo, "If there are obstacles, the shortest line between two points may be the crooked line." All universities are under pressure to change while maintaining efficiency, effectiveness and economy. Quality research and teaching are strategic goals set by an external change agenda. Implementing radical strategic change or educational innovation projects introduce high levels of uncertainty to an organisation. Change has implications for professional practice. Staff input is essential as change in universities is attained through consensus. However, consensus is most likely to be gained if the recommendations are broadly in line with the existing cultural paradigm.

Implementation is both art and science. How a manager implements change can be almost as important as what the change is. Effective change involves listening to the various "voices" within the organization and to the requirements of a particular situation. Change is not an attribute that can be adopted by a university. It is a personal responsibility that - when accepted by a majority of the people within an organization – takes on a life of its own.

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