Teaching to Learning: IT in Education

James Phelan, professor
Department of Agribusiness, Extension and Rural Development
The National University of Ireland
Dublin, Ireland
james.phelan@ucd.ie

Dermot Ruane
Department of Agribusiness, Extension and Rural Development
The National University of Ireland
Dublin, Ireland
dermot.ruane@ucd.ie

Abstract

Educational institutions are facing new challenges. The demand for traditional ‘teaching’ methods is now being replaced by a move towards a student-centred ‘learning’ environment. The traditional student population in Europe is estimated to decline by 20% by 2015; however, the demand for lifelong learning is increasing, thus diversifying the student base. In addition, current technological developments will have a big impact on the future direction of extension and rural development education programmes. Web-based learning technologies are now in place and increasing numbers of courses are being offered through this medium. While significant developments have taken place on the technology side, similar efforts regarding the development of curricula have not occurred. This paper reports on research carried out in Ireland, Greece, and the United Kingdom, the objective of which was to research, design, pilot, and evaluate a distance learning module in project management. The project was evaluated internally by participants and tutors and externally by an independent evaluator. The results indicate that online learning offers real potential for future learning, particularly in a rural development context where distance from an education centre is a severe disadvantage. However, it will never replace the class dynamic that is a critical component of the learning environment.
Introduction

Barnett (1994) states that higher education has been an institution in society, privileged and governed by an almost linear relationship through which academics defined and produced knowledge which was then imparted and infused within society through its graduates and the dissemination of its research. Its separation and freedom had given rise to the concept of an “Ivory Tower”. This Ivory Tower was underpinned by principles of scholarship, pedagogy, academic freedom and teacher centred learning. It fostered a climate where research and scholarship were individually designed, executed first and foremost at making a name for oneself. The system argued that the scholar’s merit was inaccessible to either internal or external evaluation or questioning (Bennett 1998).

Higher education now operates in a different era and is much more conscious of the market place. The product it sells is knowledge. The principles that underpinned the Ivory Tower have altered. The new drivers are excellence, efficiency, customer base, international linkages, unit costs, interdisciplinary research, FTE’s and quality as universities position themselves in the increasingly competitive world of education.

As with any business universities are no longer immune to the impact of technological developments and it is in this area that the most profound changes may yet occur. The “Virtual Classroom” is now a reality and universities are gearing themselves for this new challenge.

Purpose

The purpose of this paper, therefore, is to outline the changing nature of university education and in particular to detail the current situation regarding distance education. It will report on a project that examined the current potential of a web-based learning system to deliver a module in project management. Problems encountered are highlighted and the potential of the system for future learning is examined.

The Changing Environment

Considerable changes are occurring in the university system. These changes affect the way both staff and students perform their roles. Traditionally the main roles of academics were ones of teaching and research that is characterised in the literature through two models (Light and Cox 2001). The Linear Model which positions research and teaching as two detached practices competing for academics time. If research increases then teaching decreases. The second model (the Inter-subjective Model) views teaching and research as overlapping. Good research should inform teaching while on the other hand teaching should help to raise issues that could be addressed by research. The changing environment within universities has meant that research and teaching are no longer the only roles that must be performed by academics. Administration now involves significant effort as more accountability is sought from those that fund competitive research that increasingly dominates the university landscape. Globalisation and advancement in electronic communication has created a much stronger international dimension, and many research programmes are collaborative involving several European partners. In addition there is increasing student exchange, increasing efforts to create greater harmonisation of standards and qualifications across Europe all of which draw on the academic’s time. Thus, many academics have moved away from the traditional teaching and research roles and now
undertake a mix of responsibilities more characteristic of a modern market-led business institution.

The learning system of the past has been characterised as a teacher centred top down learning system. Today, there is a significant move from traditional lecturing to approaches that are much more student centred. Cooperative learning, participative learning, reflective learning and experiential learning are terms that appear with greater regularity in almost all curricula. There is also a move away from the traditional approach of universities focusing on knowledge to one where knowledge, knowledge application and skills are becoming more prevalent.

Entwistle (1997) describes three common approaches adopted by students. (1) The **Deep Approach**. Here the students aim is to understand the course in a way that is personally meaningful to them and which engages their own experiences and previous knowledge through an interactive process with relevant content knowledge and logic. The primary aim is to make personal meanings out of the shared meanings available. (2) The **Surface Approach**. Here students use the available meanings to cope with course requirements. The meanings remain alien to the students and success is achieved largely through memorisation. There is no substantive engagement with the student’s personal knowledge and experience. (3) The **Strategic Approach**. This approach is seen as engaging some principles from both of the above approaches. The main concern of the student is to achieve the highest grade and therefore s/he adopts an assessment focused approach. The student is alert to the cues, will have a high degree of contact with staff and will have an exam strategy.

The Evolution of Distance Learning

The term ‘distance learning’ has been applied to a great variety of programmes, providers, audiences and media. Its hallmarks are the separation of teacher and learner in space and/or time (Perraton 1988). The earliest form of distance learning took place through correspondence courses. Television and radio have also been used as a medium, but very often one found that academics who were expert in the subject matter area were not the best communicators. In addition early systems provided little opportunity for feedback leaving the learner isolated. The material was also very often not user friendly and only the most ardent persisted to the end. Schlosser and Anderson (1994) refer to the Keegan (1986) model of distance learning and state that distance learning must recreate in as far as possible the atmosphere and interaction of the traditional classroom. Perraton (1988) views the role of the distance teacher as a facilitator of learning rather than a communicator of a fixed body of information which exemplifies traditional learning.

Although technology is an integral part of distance learning, any successful programme must focus on the instructional needs of the students rather than on the technology itself (Sherry 1996). Inquiry learning which is a critical component of what is involved in web based distance learning means that the teacher is no longer the “sage on the stage” but is the facilitator of discovery learning.

The New Era

The developments in computer technology and the advances made in the World Wide Web have created new and challenging opportunities in both traditional and distance learning education. For educators the WWW provides exciting new opportunities for teaching and learning. In contrast with traditional distance learning systems it provides an opportunity for
feed back and brings to life the concept of the “virtual classroom”. The main advantages put forward for learning through the use of on-line systems are that it enables a large audience to be reached without the limits of geographic location. It is accessible at any time so students can learn at their own pace, it reduces the workload on the lecturer (once developed), it allows students the opportunity to explore a wide variety of knowledge and, it can link students to a catalogue of libraries. More and more articles are being published on the web and many agencies that collect statistics are making those statistics available on the web. Students can contact each other via the web. While there are a lot of advantages there are also several drawbacks. On-line learning requires a level of computer literacy, a certain level of investment or access to the necessary equipment. It lacks also the class or group camaraderie which is an essential part of learning. Computer capacity may vary immensely across the potential student population, with almost no two people having the same hardware and software availability, thus creating problems for tutors and facilitators.

Mason (1998) outlined three models that are currently applied to on-line learning. The first is referred to as the “Content +Support Model” or which the authors termed the “Dumping Model”. Here lecturers simply dump their traditional lectures on the web, and provide their students with access. There is little interaction. The activity may often be supplemented by tutorial support. But there is no effort made to create a curriculum that is web friendly or to endorse sound distance learning based principles. Most distance learning courses currently available are operating at this level.

The next model Mason referred to as the “Wrap-Around Model” or which these authors refer to as the “Home Video Model”. Here course materials are designed with web-based learning in mind. Efforts are made to develop materials in an attractive learner-centred fashion. Facilitators are provided and some efforts may be made to use the virtual classroom. The model uses some of the web-based learning systems but lacks the finance necessary to create an attractive and interactive web-based system.

The third model Mason refers to as the “Integrated Model” and which the authors feel could be referred to as the “Hollywood Model”. This model has well thought out and well developed curricula. It employs the technologies necessary to make it truly interactive, uses examples, simulations and charts, it is supported by professionally developed audio linkages employing the latest communication technology, it is well linked to all supporting sites and it uses notice boards and group and individual exercises. It also provides almost instant feedback with common interaction between students and tutors. The site is well designed with easy mobility from one section to next. However, it requires major support in terms of intellectual time to create curricula and also in technical development to ensure its attractiveness to students.

On-line Learning Pilot Project

The overall objective of the pilot project was to develop and evaluate an on-line distance education module in project management. The project brought together three organisations with strong professional links over a number of years and each with a solid grounding in the delivery of rural development programmes at all levels. The project proposal was developed by UCD in partnership with AERDD, University of Reading, UK and ANKA SA, Greece. The management of the project was designed according to the Logical Framework Approach.
The Job and Needs Analysis Survey

In order to develop a curriculum shaped by the needs of practitioners a survey was carried out which assessed the skills and training needs of project field managers. The focus was on organisations involved in rural development, and in particular European Union LEADER groups.

Two categories of personnel were included for this purpose:

a) project executives assessed skills and training needs of their managers

b) project managers assessed their own skills and training needs

Results were extrapolated from 74 questionnaires (28 executives and 46 managers), 30 from Ireland, 16 from the UK and 28 from Greece.

Results showed that, in general, managers saw themselves as needing less training than was suggested by their executives. This was the case for all areas of skills except for the handling of information and communication skills. The most notable difference was in the areas of planning, organisation, managing finances, team building and managing project technology.

From these needs, a curriculum was developed, containing twelve topics (listed below).

Topic 1: Development

Topic 2: Participation

Topic 3: Planning

Topic 4: Communication

Topic 5: Project proposal preparation

Topic 6: Management

Topic 7: Team building and management

Topic 8: Information technology

Topic 9: Monitoring and evaluation

Topic 10: Financial management and control

Topic 11: Partnerships and networking

Topic 12: Training

The module chosen for the pilot exercise was “Team Building and Management”.

Choice of Online Medium

The Internet has revolutionised the ways the world works, plays and communicates. It has become a medium through which education can be brought online. The use of the Internet for ‘virtual’ education among academic institutions has increased significantly, as has the number of operating systems. Blackboard was selected for the pilot as it offered a range of facilities to encourage an interactive learning experience and was availability in the three partner institutions.
Project Management Online

The module was offered online to participants in the three partner countries. A one day workshop was held in each of the three participating countries and functioned as a welcome meeting and as a method of introducing course participants (many of whom had limited computer experience) to this method of learning. Participants, with the aid of tutors, were given the opportunity to gain familiarity with the Blackboard system and the mechanics of moving through the course.

Students enter the web-site by connecting to the Internet and on entering the web-site are presented with a welcome page, which is maintained by Blackboard. Students then proceed to a login page and enter their username and password.

The communication centre contains the student pages in which each student enters some personal information and a photograph, it also allows students to e-mail each other and their tutor.

The student ‘drop box’ is one of the many student tools. Students can use it as a method for submitting assignments to their tutor. Only the student and the tutor have access to any individual drop box. Another useful feature is the ‘check your grade’ window. This enables students to check the grade that they have been given for any assignment submitted.

Through the course documents window are found the course materials. The text was partitioned into small units, expressed in simple language and featured moving graphics, discussion threads, and exercises. Documents were structured linearly, with optional reading and exercises linking to non-linear pages.

At all points in the module participants are encouraged to draw on their own experience. In the first exercise participants are requested to complete an ‘anchor project’, describing themselves, their organisations and the activities in which they are engaged. At various points throughout the module they relate what is learned to the ‘anchor project’. Participants were evaluated as a result of their participation in discussion threads, and completion of exercises.

On workshop day each participant was given a student guide. This minimised the material that participants needed to print from the Internet, helping to encourage the ‘virtual’ learning experience. The guide was adapted from the Student Guide printed online by Blackboard, and developed to suit the needs of the project participants. A similar guide was designed for the tutors.

Because of uncertainties at the beginning of the pilot project a CD was developed to supplement this system. It contained all course documents in PowerPoint in two versions—one with and one without sound. It allowed participants to go through the course and only go online to participate in discussion threads, submit exercises etc. This method proved invaluable particularly for those that had difficulty with their computer system or their Internet provider.

Project Evaluation

The project was evaluated internally by the core partners, by the tutors and by the course participants. An external evaluation was carried out by an independent evaluator. All evaluators felt that the system had huge potential. This method of online learning was endorsed by all evaluators. It was a valuable experience and much was learned by all involved. It represents a very real alternative to conventional learning methods, particularly for adult professional training.
All evaluators stressed that the system still had difficulties in terms of gaining access to Blackboard online, moving through some areas of the course and use of the virtual classroom. It is expected that these were merely ‘teething’ problems that could be resolved with the new version of Blackboard that has come more recently online. Of the 52 participants that registered, 23 received certificates. Lack of time, difficulty with accessing the course, and general technical difficulties were main reason for non-completion. The CD-ROM was essential in enabling some participants experiencing technical difficulties to continue with the course.

Generally tutor support worked well. An introductory workshop was essential, as it introduced participants to the tutors and to each other, in addition to the operating systems. However, it was suggested that the partnership should have taken a decision to have a more proactive tutor support for the duration of the project.

**Conclusion**

On-line learning offers real potential for the future. It will never replace the presence of a lecturer and the class dynamic that is important in the learning environment. It will however, bring learning opportunities to areas where little was available in the past. The cost of developing excellent courses is very demanding in terms of academic and technical time and substantial investment will be required to create good courses. There is likely to be many strategic alliances as universities position themselves in this arena, alliances between universities to get the relevant academic expertise and alliances with sponsors who will provide finance for the development of such courses. The market however, is enormous as properly developed and accredited courses have no geographic boundaries.

At a more local level, it seems logical that on-line learning centres around can be established where groups of approximately 10 people can form a learning cell with a local facilitator. These could meet in local IT centres that would have sufficient common technology to lead the course. These can then be linked back to the main lecturers or tutors for set periods via the chat room facility. Given the difficulties still with the on-line systems it is almost a requirement that a back up CD be available as there will be several occasions for one reason or another that the system will not function. However, these difficulties will decrease with time as the systems are perfected. As people become more confident they will begin to work more and more from their homes. However, the bringing together of people in a small group is still a critical learning requirement.

Over time on-line learning will affect all institutions either through active engagement in the process or through increased competition from those who do engage. Computers are becoming more widely available and the younger generation are much more computer literate than their predecessors. In addition the flexibility of learning both in time and space that it allows will be attractive to many professional as they up skill themselves in a rapidly changing world. The challenge for universities is to become leaders not “laggards” in the process.
Bibliography