Creating Educational Opportunities for Rural Adults in Ireland: The V-learn Experience

James F. Phelan
School of Biology and Environmental Science
Agriculture and Food Science Centre
University College Dublin
Belfield, Dublin 4
E-mail: james.phelan@ucd.ie

Elizabeth Mulhall
School of Biology and Environmental Science
Agriculture and Food Science Centre
University College Dublin
Belfield, Dublin 4
E-mail: lily.mulhall@ucd.ie

Abstract

Technology has revolutionised the way people live and learn. The advantages are numerous and include the availability of cohesive learning materials, flexibility of learning, the removal of distance as a major entry barrier and time saving, once courses are developed. The constituent universities of the National University of Ireland have worked together over the last ten years using an action research approach in developing a blended learning system for rural development activists. Critical components of the model developed include a core of academic managers, a team of lecturers across a wide range of disciplines, a set of tutors and specially developed content delivered via CD and Blackboard™. The use of student tutorial groups (learning cells) and inter-college seminars are seen as major contributors to high retention rates. Over 300 adult learners have participated in this system of learning and 55 have graduated with a BSc in Rural Development, while the remainder graduated with diplomas. A detailed evaluation of results, external examiner’s reports and focus-group discussions show that their performance is on par and in many cases exceeds that achieved with traditional learning systems. A survey of students completing the programme shows that they rate the system on par or better than traditional face to face learning systems. The paper details a case study of the development of the V-learn.ie model in Ireland and concludes that it is innovative in structure and in the extent of expertise that it can present to rural people. These developments have implications for extension as eLearning is increasing in popularity among extension organisations.

Keywords: Adult, Computers, Development, Education, eLearning, Learning, Rural
Introduction
The knowledge economy in which rural populations operate is becoming increasingly global and highly competitive (Brinkley, 2006). Consequently, many national governments see an increase in the quality and quantity of adult and continuing education programmes as a priority and educational institutions are charged with the task of designing programme curricula to achieve these policy aims.

Higher education today operates in a new era, an era that is much more conscious of the market place. Market forces, globalisation, internationalisation, competition, cost efficiency and quality are all terms that appear with increasing regularity in university documentation (Green, Echel, & Barblan, 2002, p. 8). These are the new drivers as universities position themselves in the increasingly competitive world of education. Like any business, universities are not immune to the impact of technological developments and it is in this area that the most profound changes may yet occur. “In higher and post primary education, the borders between distance training and traditional training provision are becoming gradually blurred” (p. 8). The “disappearance of technical barriers and the proliferation of partnerships and pilot experiments at the European level” are increasing (European Commission, 2000, p. 8). Some universities are “adopting new business models in order to respond to the changing education market and the challenges posed by global competition” (European Commission, 2002, p. 5). The “Virtual Classroom” is now a reality and universities are gearing themselves for this new challenge.

These changes are occurring at a rapid rate and as is the case with all technology, it is young people that gain proficiency the quickest. Most faculties in universities were hired and have operated for a considerable number of years before the advent of the World Wide Web and thus may find it difficult to embrace its implications, a fact clearly noted by Caplan (2004). However, in spite of reluctance at the beginning, academic staff and institutions are slowly beginning to appreciate the opportunities presented by these new technologies. This can be evidenced by the fact that many universities now host electronic learning platforms such as Blackboard™ or WebCT™. The importance of this development is stressed by Elloumi (2004) who noted “a vision of excellence for online learning is not a choice, but a market driven imperative” (p. 66).

Many adults are returning to the workplace while many others are availing of educational opportunities, which were not available to them decades earlier. While most students in Ireland still enter university mainly through the Central Applications Office (CAO) system, increasing numbers are entering from linked programmes where students obtain credit for work done in their previous programme. There are also increasing numbers of certificate, diploma and taught master’s programmes, as the focus on life long learning increases. In addition there is increasing mobility of students across Europe and this is strongly supported by the European Union (EU) ERASMUS Programme.

ELearning is also becoming important as a training tool for extension services. The University of Wisconsin is particularly active in this regard as is Teagasc, (Irish Extension Service). Teagasc and the Health and Safety Authority in Ireland have recently released a training pack containing a CD on farm safety, which is being used by the extension service as part of its training programme for farmers in the area of farm safety (Health and Safety Authority [HSA], 2006).

Purpose and Objectives
The purpose of this paper is to outline recent development in eLearning in Ireland. This will be done through: a) reviewing the changing environment in
which university education operates and in particular the development of eLearning; b) presenting and discussing a case study of a blended learning programme developed and delivered in partnership by four Irish universities; c) presenting results of an evaluation of one of the major modules in the programme, which incorporated the most recent developments; and finally d) drawing conclusions about the contribution of blended learning systems for universities and extension services.

**Methodology**

The research incorporates a mixed methodology incorporating components of both quantitative and qualitative approaches. It draws on a significant body of literature in the area of curriculum development and eLearning. It uses documentary evidence provided by examination results, external examiner’s reports and minutes of meetings and personal observations. It also uses action research principles where one piece of research informs the next. The use of mixed methods is increasing in popularity; according to Cresswell (2003), mixed methods research, “employing the data collection with both forms of data, is expanding” (p. 208). The fact that research is not always a clear line from A to B but builds on information collected in different ways over time is also supported by Bechhofer (1974). “The research process is not a clear-cut sequence of procedures following a neat pattern but a messy interaction between the conceptual and empirical world, deduction and induction occurring at the same time” (Bechhofer, p. 73).

**Theories of Learning**

While significant changes have occurred in universities, teaching is influenced by past experiences (Delaney & Mitchell 2005). Bloom’s taxonomy has long been used as a guiding influence in educational development. The competences to be developed are: knowledge, understanding, application, analysis, synthesis, and evaluation (Bloom, 1956).

![Figure 1. Bloom’s Taxonomy of Educational Objectives](image_url)

Later, the Affective and Psychomotor domains were added. Similar type models were developed by Chickering and Gamson (1987) and by Fleming (1987) with these latter models focusing more on feedback. Traditionally Blooms taxonomy and its derivatives were used in a top down manner, with little participative involvement in the development of curricula. While Bloom’s taxonomy and its additions are still very relevant today, modern curricula are more student-centred and focus more on learning.
outcomes. Romiszowski (as cited in Gibson, 2005, p. 29), suggested that when focussing on learning outcomes, four broad areas of skills development should guide the process. These are: 1) cognitive; 2) psychomotor; 3) reactive; and 4) interactive. Learning outcomes are clear statements of what the student will be able to do after completing the learning activity. A focus on learning outcomes should help the teacher or tutor to select the most appropriate learning activity. Learning outcomes focus on knowledge, cognitive skills, subject specific skills and transferable skills. This approach has in many ways been driven by the Bologna process (Bologna Process, 2005), which seeks to harmonise curricula design across Europe, in order to create greater transfer of students. It is also driven by a greater focus on “employability” of students emerging from the educational process. In addition, the focus on learning outcomes provides a better framework for the evaluation of courses, as learning outcomes are more easily assessed than learning objectives.

Considerable philosophical change has also occurred in approaches to teaching and learning. 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 (Barr & Tagg, 1995). These include enquiry based learning (Kahn & O’Rourke, 2005), action learning (McGill & Beaty, 1995), problem based learning (Barrett, 2005; Barrows & Tamlyn, 1980), and experiential learning (Brooks, 1995; Kolb, 1985).

**Evolution of Distance/E- Learning**

The term distance learning has been applied to a great variety of learning situations (Delaney & Mitchell 2005; Perraton, 1988; Peters 2001). In analysing the evolution of distance learning one can classify it into four phases/generations. These phases are an expansion of that presented by Dede (1996) and the three forms presented by Valentine (2002). They also draw on articles related to retention by Rovai (2003) and Herbert (2006). The first type of distance learning (Generation 1) was in the format of correspondence courses. Here the main focus was on providing learners with text, which they could study at home. However, studying alone can be a very lonely experience and only the highly motivated succeed. Thus the early years were characterised by significant drop out as the systems were not able to create favourable conditions except for the most ardent learners. Distance learning received a significant boost with the founding of The Open University in the United Kingdom in the 1960’s in the belief that it could, using modern communications, create greater access to education. This institution has continued to embrace new technologies and is now a very significant supplier of adult learning courses. It also provides a framework for public private partnerships in the delivery and accreditation of learning.

The next generation (Generation 2) saw the introduction of television and videocassettes to complement the written word. However, 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 feed-back leaving the learner isolated. The material was also very often not user friendly and again only the most ardent persisted to the end. Videocassettes were also costly to produce and very quickly became outdated. Similar to correspondence courses, there was little opportunity for feedback and learning remained largely a top down process.

Generation 3 with the advent of the computer began to show real opportunities for distance education. However, it also introduced a new set of learning experiences for students i.e., that of learning the new technology as well as the subject matter. Almost all courses suffered from the lack of access to material, other than which was
provided directly as course materials and these were often not specifically prepared for electronic delivery. There was also a lack of critical mass and thus little or no opportunity for contact between learners. The main result was again a significant retention problem, with many students dropping out because of isolation and frustration with the technology.

The New Era

The greatest leap in the development of distance learning (Generation 4) has come with the advent of the World Wide Web. The developments in computer technology and the advent of the World Wide Web have created new and challenging opportunities for both traditional and distance learning education. This and the reduction in cost combined with the enhanced capacity of computers have meant that many homes now have access to computers. The Wall Street Journal of February 4, 2004 for example quoted that 54% of US adults use the Web on a regular basis, while 90% of 15-17 year olds are regular Web users. Data from Ireland (Amáras, 2004) shows that 46% of adults and 70% of 15-24 year olds use the Internet. Where computers are not in homes, they are available in schools, local training centres and more recently in rapidly expanding Internet cafés.

For educators, the Internet 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 overriding advantage of distance learning is its ability to reach dispersed audiences. It is accessible at any time so students can learn at their pace. It reduces the workload on the lecturer, once the courses have been developed. It allows students the opportunity to explore a wide variety of knowledge and can link students to a catalogue of libraries as more and more articles are being published on the Web. Many agencies that collect statistics are making those statistics available on the Web. Students can contact each other via the Web, which can greatly increase collaboration between students thus negating the sense of isolation that many distance learning student’s experience.

Commercial companies have seen the opportunities for e-learning and there are now a number of well-developed learning platforms. Sherry (1996) discussed the need to combine technology with sound educational practices, while Saettler (1990) quoted in Sherry, …found that the mental effort a learner will invest in learning depends on his or her perception of two factors: (1) the relevance of the medium and the message, which it contains; and (2) the ability of the learner to make something meaningful out of the material presented. (p. 341)

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. Phelan (2002) classified e-learning approaches into three categories/models:

1. Dumping model: Lecturers dump their traditional lecture notes or handouts on the Web, thus providing students with access. No effort is made to adapt them for electronic learning. It facilitates access, although some argue that it transfers the cost of photocopying to the student.
2. Home video model: Course materials are designed especially for e-learning. Efforts are made to incorporate sound pedagogic principles, thus it is learner centred. Efforts are made to use modern technologies; however, these are limited to what is locally available. Efforts are also made to use the “virtual classroom,” but due to lack of finance and support, the attractiveness of the material is limited.
3. Hollywood model: This model employs all the latest communication
technologies and expertise to make the materials and the system fully interactive. It first requires a content review and development to ensure that content delivery can take full advantage of the new technologies. It also requires intellectual and technical investment to ensure high quality learning methods as well as a framework to support the learner.

Phelan (2002) noted that first efforts with the new media were minimal and largely involved placing traditional lecture notes etc on the Web. This to some degree explains the slow take up of e-learning. He also notes that many institutions have moved beyond the dumping model and new courses are now beginning to be specifically written underpinned by modern learning theories and based on self learning principles, incorporating practical examples that link theory with practice and that provide a range of learning stimuli (text, audio, visual etc.). One of these examples are courses developed by v-Learn.ie (www.v-Learn.ie), a virtual learning centre of the National University of Ireland (NUI) involving a partnership of four universities in Ireland, UCD, Dublin, The National University of Ireland, Galway (NUIG), The National University of Ireland, Cork (NUIC), and The National University of Ireland Maynooth (NUIM).

**Blended Learning - the V-learn Model**

The constituent colleges of the National University of Ireland (NUI) have worked together over a ten-year period to create a Diploma and Degree in Rural Development underpinned by modern learning philosophies and using distance learning methodologies. The author was a core member of this group and acted as its chairperson for a period of six years. The development was informed by a LEONARDO supported pilot project, which evaluated the use of e-learning methodologies to deliver a short course in project management to participants in Ireland, Greece and the UK. The project used the Blackboard™ platform and the only physical contact with learners was a one-day introductory workshop. All other support was provided electronically. Of the 52 participants that registered, 23 received certificates. Lack of time, difficulty with accessing the course, and general technical difficulties were the main reasons for non-completion. The project was evaluated internally by the core partners, by the tutors, by the course participants and by an external evaluator. The conclusion was that e-learning represented a very real alternative to conventional learning methods, particularly for adult professional training (Phelan, 2001). All evaluators, however, stressed that the system had difficulties in terms of gaining access to blackboard online, moving through some areas of the course and use of the virtual classroom. However, these were viewed as problems that would quite quickly be solved, thus opening the way for e-learning.

The project evaluation provided a number of important pointers. Firstly the cost of developing top quality courses is very demanding in terms of academic and technical time and substantial investment is required to create good courses. Because of lack of mass in any one university, this demanding technical input can best be met through collaboration. Secondly, learners need support in terms of real contact with tutors and with one another. This enhances the learning process and provides the necessary body contact and support to retain learners. Supported with this knowledge and experiences gained from implementing a diploma the four NUI colleges agreed to collaboratively develop and deliver a BSc in Rural Development using a specifically designed e-learning model and the Blackboard™ platform. The first B.Sc. course was launched in 2004 and the model was developed diagrammatically in 2005.
The model is built around (a) development of a text document oriented towards distance/electronic learning; (b) development of a set of interactive slides with voice over as an additional learning tool; (c) provision of voice over in MP3 format, which can be played on car CD players or on MP3 players; (d) use of strategically placed tutors as learning facilitators for the learners; (e) encouragement of local learning cells; (f) a programme coordinator at each institution; and (g) an academic management team consisting of key academics from each institution.

Because of difficulty and slowness in using the Internet in some areas, all learning materials are made available through CD. The model developed is based on the “Blended Learning” principle (one that supports eLearning with face to face contact), which uses electronic methods, but also draws on good learning principles from more traditional teaching methods. The model also incorporates critical interactions as outlined by Laird (2003), learner-learner interaction; learner-tutor interaction; and learner-content interaction. The model is presented diagrammatically in Figure 2.

A key aspect of the model is contact with and between students. This contact is provided through the encouragement of local learning cells, where students learn together and through the provision of a tutoring system at the local level. Opportunities are provided for all students in an area to come together for a number of one-day seminars, which are provided throughout the year. The model fulfils three important principles put forward by Garrison, Anderson, and Archer (2000). These are that a learning model should display a “cognitive presence,” a “social presence,” and a “teaching presence.” The

Figure 2. NUI (v-Learn.ie) Blended Learning Model.
cognitive presence and the teaching presence are supplied through using specifically developed e-learning texts supported by voice over PowerPoint type presentations, which incorporate video clips, animations, interactive learning objects and self correcting quizzes. The social presence is provided through an active tutoring system, the use of seminars and the use of projects, which encourage the formation of local learning cells that involve both a physical and electronic presence. A typical local learning cell would involve four to five people.

The model also fulfils the requirements of an effective learning environment as put forward by Bransford, Brown, and Cocking (1999). They state that an effective learning environment is learner centred, knowledge centred, assessment centred and community centred. There is a very strong sense of community within the programme. This is developed by having an open access system to tutors, lecturers and the core management team. It is also supported by seminars, which are attended by both staff and students. Thus the model strongly values interaction, the importance of which has been highlighted by many authors (Anderson, 2003; Wenger, 2001).

The model is referred to as a “blended learning” model as it incorporates both face to face and electronic contact. Blended learning according to Rovai and Jordan (2004) is a hybrid of classroom and online learning which creates a stronger sense of community than either traditional classroom learning or e-learning.

Of primary concern for any learning model is its effect on the learning process. There is considerable debate in the literature about the value of e-learning and regarding what actually contributes to improved outcomes, is it the technology or the content? One school of thought is that technology is only the vehicle (Clark, 1983; Schramm, 1997) and it is the improved content that is the main causal factor (Bonk & Reynolds, 1997). Several others have listed the advantages of online learning over traditional methods (Cole, 2000; Landau, 2001). In reality improved outcomes are probably a combination of both. The fact that students can learn at their own pace and are not time bound as well as the possibility of viewing lectures a number of times seems to present logical advantages. In addition, because universities are based in cities and many students live off campus, time saved travelling can be enormous, thus allowing more time for productive work. On the other hand e-learning content, when developed properly, presents coherent well-linked material, which often is not the case with traditional curricula.

Evaluating the Model

The evaluation was guided by the Kirkpatrick (1994) model and focussed on the first group of students that completed the entire programme. The first important point to note is that there was minimal dropout from the programme, much less than experienced with the earlier LEONARDO supported programme. A small number of people who were interested at the beginning did not pursue the programme, but of the 55 students who registered for the programme only two dropped out. These results are similar to that reported by Carr (2000), who states that online courses experience higher attrition rates than blended learning courses. Forty-six percent of students were aged between 41 and 50, while 24% were younger and 30% older. Sixty six percent stated that they were familiar with IT from their work experiences, while the remainder were not. Only 2% had completed a degree already, thus for the vast majority it was a return to education and their first venture into 3rd level.

A questionnaire was developed to evaluate Module 25. Module 25 was selected because it incorporated lessons learned from previous modules. It was also a substantial module (10 ECTS Credits) and was delivered half way through the final year of the programme. The questionnaire
was developed using Survey Monkey.Com, an electronic survey platform and comprised of a combination of Likert type questions using a scale of one to five; yes/no questions and open ended comment questions. The questionnaire was reviewed by the academic core team and the tutors and was pilot tested before being sent online to the students. Fifty respondents completed the detailed online questionnaire. It is not the intention in this paper to comment on the entire evaluation but to select a number of aspects that were particularly relevant to the model.

Module 25 dealt with socio-economic research methods, as well as research approaches and encompassed components on statistics and SPSS, areas that students often find difficult. The module comprised of eight units with a comprehensive set of texts written specifically for each unit (248 pages in total). It also contained a series of PowerPoint slides, with voice over (120 slides), a list of reference material and operational guidelines. Figure 3 shows that very few students had difficulty in understanding the learning materials provided.

![Materials provided were clear](image)

*Figure 3. Clarity of materials provided.*

Forty-one students agreed or strongly agreed that the materials provided were clear, with only one disagreeing. As mentioned earlier a key principle of the V-learn model is to provide as many learning stimuli as possible. Module 25 used interactive clips, video clips and quizzes at the end of each unit. Students’ perceptions of these items as learning supports are presented in Figure 4. The first point that can be made is that all methods were rated highly by students. A critical outcome of the analysis is a clear recognition that students learn in different ways. Some for example rated the text very highly and relied on it as the main learning method, while others rated it more poorly in comparison to other methods.
The same in fact was found for all methods. It is also clear from Figure 4 that text, diagrams and the slides with voice over were the most highly rated learning methods. What was somewhat surprising was the value given to the text, but it does clearly show that a text prepared specifically for a topic, incorporating good pedagogic learning practices specifically developed for electronic learning can be an extremely useful learning tool. On the other hand, it was somewhat surprising that the self-correcting quiz received the lowest rating as this was developed as a summary mechanism for each unit and as a means through which students could self test their knowledge.

Finally students were asked if they felt hindered in any way through having to learn online and what they liked best and least about the module. Sikora and Carroll (2002) reported that “47% and 51% of undergraduates and graduate/first professionals respectively were less satisfied with online courses than with traditional methods” (p. 23). In this survey, 29 students stated that they were in no way hindered by having to learn online, while 13 stated that they were. Most comments regarding what students liked best were related to content being relevant and well presented, however a number did mention the usefulness of mixed learning methods. Again the greatest dislikes also related to content and particularly unit seven, which dealt with quantitative data analysis. Other comments related to language and that some areas should be given greater depth. There were no criticisms of the methodology other than respondents wanting more time to complete the module, while some felt it might be better as two 5-credit modules rather than the 10-credit module which it was.

**Conclusion**

Distance learning has advanced significantly over the past 20 years and real alternatives to traditional learning systems are now beginning to emerge. High quality e-learning systems are expensive to develop and top quality systems can best be developed through institutional collaboration rather than each institution repeating the process. Well developed e-learning models can challenge traditional systems, while poorly developed systems contribute little to the learning process and are more likely to damage the reputations of institutions than enhance them. The Distance/e-learning model developed by the NUI universities provides real learning opportunities for distance students and for mainly campus-based students. It has overcome the major problem of many other
models i.e. that of significant student drop out. The local support networks and the tutors are critical factors in this regard (each 5 credit module received 6 hours of direct tutor support as well as electronic support). The incorporation of a number of different learning methods reinforces learning and is particularly important as different students learn in different ways. The preparation of material incorporating sound pedagogic principles and geared specifically to e-learning (as demonstrated by the evaluation of module 25) can achieve outcomes which are superior to traditional learning systems. The cost of delivering courses in this manner (once developed) is much lower than in traditional systems, while the advantages for the student in terms of flexibility of learning, access to materials and time saved in commuting are significant. The time is approaching when there are no logical reasons for totally campus-based courses. Internationally competitive universities will be those that invest in and support the e-learning process. They will also be the universities, which are in themselves big enough to support these developments or who through strategic partnerships can amass the necessary expertise and resources. Universities must also question their current investment strategies where investment in buildings and concrete is more important than investment in pedagogy and new methods. While universities will still need facilities, future demands may differ significantly from past and current experiences.

Universities are not the only institutions that need to embrace these new technologies. Extension education systems also need to be more aware of the possibilities of eLearning and blended learning as systems for educating adults. While some are very active in this area, many still rely on traditional methods. Similarly, Government Ministries that support education need to take cognisance of these changes and develop appropriate support systems for students, which are course based rather than campus based. The concept that students must be full-time on campus in order to qualify for financial supports is outdated. Courses nowadays are constructed based on learning outcomes and are less dependent on where and how they are delivered. More and more businesses are following the e-learning route. Universities should be leaders not laggards in this regard. This however, will not happen without significant financial support and without a real commitment to the development of e-learning both on and off campuses.

References


Rovai, A. (2003). In search of higher persistence rates in distance education online programs. *Internet and Higher Education, 6*(1), 1-16.


