Strategies for Embedding e-Learning in Traditional Universities: Drivers and Barriers

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Abstract: This paper addresses the question: how can e-learning be embedded in traditional universities so that it contributes to the transformation of the university? The paper examines e-learning strategies in higher education, locating the institutional context within the broader framework of national and international policy drivers which link e-learning with the achievement of strategic goals such as widening access to lifelong learning, and upskilling for the knowledge and information society. The focus will be on traditional universities i.e. universities whose main form of teaching is on-campus and face-to-face, rather than on open and distance teaching universities, which face different strategic issues in implementing e-learning. Reports on the adoption of e-learning in traditional universities indicate extensive use of e-learning to improve the quality of learning for on-campus students, but this has not yet translated into a significant increase in opportunities for lifelong learners in the workforce and those unable to attend on-campus. One vision of the future of universities is that 'Virtualisation and remote working technologies will enable us to study at any university in the world, from home'. However, this paper will point out that realisation of this vision of ubiquitous and lifelong access to higher education requires that a fully articulated e-learning strategy aims to have a 'transformative' rather than just a 'sustaining' effect on teaching functions carried out in traditional universities. In order words, rather than just facilitating universities to improve their teaching, e-learning should transform how universities currently teach. However, to achieve this transformation, universities will have to introduce strategies and policies which implement flexible academic frameworks, innovative pedagogical approaches, new forms of assessments, cross-institutional accreditation and credit transfer agreements, institutional collaboration in development and delivery, and, most crucially, commitment to equivalence of access for students on and off-campus. The insights in this paper are drawn from an action research case study involving both qualitative and quantitative approaches, utilising interviews, surveys and focus groups with stakeholders, in addition to comparative research on international best practice. The paper will review the drivers and rationales at international, national and institutional level which are leading to the development of e-learning strategies, before outlining the outcomes of a case study of e-learning strategy development in a traditional Irish university. This study examined the drivers and barriers which increase or decrease motivation to engage in e-learning, and provides some insights into the challenges of embedding e-learning in higher education. While recognising the desirability of reaching out to new students and engaging in innovative pedagogical approaches, many academic staff continue to prefer traditional lectures, and are sceptical about the potential for student learning in online settings. Extrinsic factors in terms of lack of time and support serve to decrease motivation and there are also fears of loss of academic control to central administration. The paper concludes with some observations on how university e-learning strategies must address staff concerns through capacity building, awareness raising and the establishment of effective support structures for embedding e-learning.

Keywords: institutional strategies; embedding e-learning; academic preferences

1. International and national e-learning strategies

In recent years, pressures have emerged from policymakers and other stakeholders to embed e-learning technologies in mainstream higher education. The interest in implementing e-learning in higher education systems throughout the world has been influenced by a number of pressures and drivers. According to Hammond (2003) higher education institutions exist within political, cultural and social contexts which shape policy and practice. Within this context the main drivers are national policies and priorities with regard to economic and social development, beliefs and expectations of the role of education in terms of supporting those priorities, and developments in educational technologies which have the potential to enable the system to achieve these objectives. These three drivers are interdependent, and influence the adoption of learning technologies in the institutions through the role of funding and support agencies (Hammond 2003). According to this model, the pressures on institutions to adopt e-learning are substantial, however, the ability to do so can be constrained by numerous barriers, not least the availability of funding.

The European Union is one of a number of international bodies (including the OECD, the Council of Europe and the World Bank) which have an interest in promoting e-learning. ICTs and e-learning

have been identified as essential approaches to adapting education and training systems to meet the Lisbon objectives ('to make Europe the most competitive and dynamic knowledge-based economy in the world, capable of sustained economic growth with more and better jobs and greater social cohesion') (CEC, 2003). The European Council conclusions on adult learning in May 2008 invited Member States to establish e-learning and distance learning opportunities to support a culture of lifelong learning (CEC 2008: 12).

The pressure to adopt e-learning should also be seen in the context of the pressure on European higher education systems to reform and modernise in terms of curricula, teaching methods, expanded learning outcomes, new types of students, qualifications frameworks, quality assurance, research and innovation (cf. Bologna reforms and the Lisbon Agenda). Universities have been criticised by the EU Commission (CEC 2006) for offering 'the same courses to the same group of academically best-qualified young students and fail[ing] to open up to other types of learning and learners' (p.3); their approach has 'slowed down innovation in curricula and teaching methods' (p.3); and universities are informed that they need to 'grasp more directly the challenges and opportunities presented by the lifelong learning agenda' (p7).

According to a review of national e-learning strategies by Anderson et al (2006), the two key drivers underlying the adoption of e-learning are (a) the need to upskill the population to meet the challenge of the information and knowledge society and (b) the need for accessible and flexible access to tertiary education to meet the changing nature of society and the lifelong learning agenda.

A number of countries have developed national e-learning strategies for the higher education sector which aim to meet needs for lifelong learning, upskilling, and quality improvement. For example, HEFCE (Higher Education Funding Council of England) has adopted a strategy to embed e-learning in all higher education institutions, 'in a sustainable way, by 2010' and is working with the Higher Education Academy and the Joint Information Systems Committee on implementing the strategy (HEFCE 2005). HEFCE defines e-learning as 'any learning that uses ICT' but stresses that it also encompasses 'flexible learning as well as distance learning, and the use of ICT as a communications and delivery tool between individuals and groups, to support students and improve the management of learning' (HEFCE 2005: 5). According to HEFCE 'In the light of our rationale and definition for our e-learning strategy, we therefore aim to support the HE sector as it moves towards embedding e-learning appropriately, using technology to transform higher education into a more student-focused and flexible system, as part of lifelong learning for all who can benefit.' (HEFCE 2005: 5). Seed funding to a total of £33m was distributed to 74 English universities in 2007, as a consequence of which, the majority of UK universities have now adopted or updated their e-learning strategies. Morris makes the point that "Within the UK, there has been a marked switch in national strategies for e-learning away from funding centralised initiatives (such as the UKeU and the National Health Service University) to decentralised activities with funding allocated to individual institutions" (Morris 2008: 336).

In New Zealand, the E-Learning Advisory Group to the Ministry of Education recommended that a tertiary e-learning consortium should be set up to coordinate the development of e-learning in the higher education sector (ELAG 2002) and an interim e-learning strategy was established in 2004 (Ministry of Education 2004). The Ministry of Education funds a number of e-learning initiatives, including the e-learning Collaborative Fund (NZ$28m between 2003 and 2007) and the Tertiary e-learning Research Fund, as well as the e-learning Portal at www.elearn.govt.nz.

It should be noted, however, that the adoption of e-learning does not necessarily increase access or widen participation to off-campus students. The OECD report on e-learning strategies adopted in institutions in thirteen countries found that enhancing on-campus learning was the leading rationale for adopting e-learning, whereas distance learning did not feature as a strong rationale in over half of the institutions surveyed (OECD 2005). Another report on e-learning strategies in Japan found that while over 70% of institutions had adopted some form of e-learning, less than 10% made courses available to off-campus students (Latchem et al 2007). In addition, a study carried out on behalf of the New Zealand Ministry of Education, which surveyed national e-learning policies in eight countries, found that the strategies tend to present e-learning as a 'completely new phenomenon' and that there is a disconnect in a number of national strategies with the 'rich and long tradition of distance education'. This leads to a situation where there is a lack of policy alignment where the e-learning policy is not supported and reinforced in other tertiary policy initiatives (Brown et al 2007).

A number of national and international e-learning strategies hold out the goal of ubiquitous and lifelong access to higher education However, it should be acknowledged that the realisation of such a vision will require more than the availability of technological infrastructure. Lifelong access to higher education via e-learning will require HE institutions to implement strategies and policies which focus on: flexible modular frameworks; innovative pedagogical approaches; new forms of assessments linked to learning outcomes, including eportfolios; cross-institutional accreditation and credit transfer agreements; institutional collaboration in development and delivery; multiple access and exit points from programmes; and, most crucially, commitment to equivalence of access for students on and off-campus. In the context of modernising the system, some of these processes are already in train in European higher education, for example, implementing the national qualifications framework and adopting the Bologna reforms. However, while the system is responding to the policy drivers, in the form of strategy formulation, there are also significant barriers to implementation at local level.

In the next section, we will examine some of the rationales for adopting e-learning strategies before examining the barriers to implementing such strategies, and ways in which these barriers can be removed.

2. Institutional e-learning strategies

A number of studies (e.g. Garrett and Jokivirta 2004; OECD 2005; Schiffman et al 2007; JISC 2008) have investigated the reasons institutions give for engaging in e-learning or adopting e-learning strategies. The majority of the rationales cluster into seven broad categories as follows:

- Enhancing Reputation
- Developing Information Skills/Literacies
- Widening Access
- Supporting the Disabled Student
- Improving Quality of Teaching and Learning
- Increasing Flexibility
- Reducing Cost/Improving Cost-Effectiveness

Garrett and Jokivirta surveyed 122 Higher Education institutions in a number of Commonwealth countries while Schiffman and his colleagues surveyed 738 US tertiary institutions which were engaged in online learning. What is interesting is that the institutions in the Schiffman study prioritised the recruitment of additional students from new geographical areas and new markets, while those in the Garrett and Jokivirta study foregrounded the enhancement of on-campus learning as their main reason for developing e-learning. This may indicate that the US institutions are further ahead in the implementation of e-learning and are now in a position to move beyond the campus. It may well also reflect the more competitive environment in which many US universities operate.

As noted above, the HEFCE e-learning strategy (2005) in England and Wales has stimulated an upsurge in e-learning strategy development, with the majority of UK universities now having adopted e-learning strategies. Analysis of a sample of such strategies indicates that most universities have adopted a 'bottom-up' rather than 'top-down' implementation policy; they tend to foreground the potential of e-learning to enhance teaching and learning; and to foster a wide variety of learning outcomes. In addition, staff training is seen as essential to successful e-learning but flexible support structures and mechanisms are seen as even more important (MacKeogh and Fox 2008). Again this reflects what is, for most institutions, a relatively early stage of e-learning development. The University of Lancaster (2006) e-learning strategy is quite explicit about the stages of e-learning development:

- **Minimum/Introductory** - the minimum standard readily achievable now for all programmes of study. This defines what all students should expect as part of their e-learning experience at Lancaster University.
- **Intermediate/Contextual** - development and embedding of activities into local LTA [Learning, Teaching, Assessing] practices (blended learning) and customisation to specific disciplines and contexts.
- **Advanced/Transformational** - significant shift in pedagogical practice and greater requirement for technical infrastructure and development.

In contrast with the situation in the UK, and other countries which have developed national e-learning strategies, Ireland has yet to develop its own national strategy. The Higher Education Authority (www.hea.ie) – the national funding body for Irish universities - established an expert group to enquire into the possibility of a national strategy for open distance learning in March 2008, however, at the time of writing, no announcement of the strategy had been made. To date, none of the seven universities in Ireland has established a formal institutional e-learning strategy, however, Dublin City University (DCU) set about developing its e-learning strategy in 2007. In the next section, we will discuss the outcomes of a case study of e-learning strategy development in DCU.

3. Dublin City University – the development of an e-learning strategy

Dublin City University (DCU) is a small university (9,000 students) which faces a number of challenges which will affect its development over the next five to ten years. These include: declining student funding in real terms; differential growth and decline in enrolments; fulfilling the commitment to extend access and widen participation; maintaining and assuring the quality of teaching and learning; maintaining the balance between teaching and research; and growing competition from institutions both in Ireland and abroad. These challenges are not confined to DCU, and in common with many other universities, DCU has turned to e-learning as a potential solution to some, at least, of these challenges. DCU has a long tradition of providing distance education programmes to adult students through Oscail – the National Distance Education Centre - which is part of DCU (see MacKeogh 2003), and it was the first university in Ireland to adopt the open source VLE, Moodle. Nevertheless, DCU is primarily a traditional university and the adoption of e-learning in the faculties is in its infancy and has, to date, not achieved any significant transformation of teaching and learning for traditional students (Blin and Munro 2008).

In November 2007, DCU Executive requested the authors of this paper to investigate and develop the basis for an e-learning strategy for the whole university which would involve the embedding of e-learning in all programmes, not just those delivered to off-campus students by Oscail. The authors were asked to investigate a range of areas and to make recommendations based on evidence from its research. The chief areas of investigation centred on the policy drivers for adoption of e-learning, including the demands of the Bologna process for transformation of university curricula, identification of best practice with regard to sustainable organisational structures for embedding e-learning in the university, and most importantly, the environment within DCU with regard to capacity and openness to adopting e-learning. In order to ensure that the needs of lifelong learners as well as those of traditional on-campus learners were kept in focus, it was recognised that e-learning covers a spectrum of provision, and can be used both to enhance existing provision, or to extend access to those who are unable to attend on-campus education. Therefore, the following working definition of e-learning was adopted: 'The use of ICTs to improve the quality and flexibility of learning for all students and to extend access to higher education to those who are unable to attend on-campus for whatever reason'.

As part of its investigations, the authors carried out extensive reviews of the literature on e-learning policy, institutional strategies and initiatives, and trends in technology. With regard to the potential for e-learning in the University, the authors adopted a systems approach, recognising that any process in the university is affected by and affects in turn a wide range of individuals and groups, with various roles and responsibilities. In effect, e-learning is not just the responsibility of academics; administrative support units are key facilitators, including the Learning Innovation Unit, Library, Student Services, Computer Services, Registry, Finance, Human Resources etc. For e-learning to flourish, all systems must interact to ensure that there are no blockages or inhibitors. In order to ensure that all staff were involved in the consultation exercise and had an opportunity to voice their views a questionnaire survey examined attitudes, motivations, facilitators/inhibitors to participation in e-learning, expertise and training needs.

We now turn to some of the factors in facilitating and inhibiting the further development of e-learning in DCU which have emerged from the investigation.

4. Barriers and facilitators – staff attitudes

In the previous sections we have discussed the drivers leading to the upsurge in e-learning policy and strategy formulation, however, while much research has confirmed the need for top-down strategies, nevertheless, it is also widely recognised that academic staff acceptance and engagement is a key factor in the successful implementation of the institutional strategy (see Cummings et al 2005). The

political support of senior management is essential for the wider adoption of new practices, but innovations cannot be adopted without buy-in from rank and file academic staff who, in their role of subject matter experts, and in accordance with the tradition of academic freedom, can often choose whether or not to change their teaching practice.

In order to establish the climate of opinion within DCU with regard to adoption of e-learning, a series of unstructured interviews with some sixty key stakeholders in the university took place over a period of four months. These included Deans, Heads of School and Administrative Units, and academics and administrators, as well as group meetings with Faculty boards and schools. The interviews covered a wide range of issues, including the potential for converting programmes for e-learning, and the type of factors inhibiting or facilitating e-learning. The purpose of these consultations was twofold, firstly to establish the conditions likely to favour the embedding of e-learning in DCU, and secondly to create an awareness of the potential of e-learning for meeting a range of strategic objectives. The responses may be summarised below.

Attitudes to e-learning were mixed, ranging from highly sceptical, to highly supportive, particularly with regard to the pedagogical effectiveness of fully online programmes. It became apparent that there was a widespread lack of awareness of the potential and quality which e-learning can achieve, or the type of pedagogical philosophy underpinning effective e-learning. There was a strong allegiance to the face-to-face teaching model allied with a current of scepticism about e-learning, particularly around issues of quality, workload, and loss of control. However, there was also evidence of enthusiasm and strong expertise among some staff, with recognition of the need for new approaches. Oscail programmes are fully online (1,500 students), and some schools have developed innovative e-learning initiatives (although some of these were somewhat protective of their programmes and resistant to the prospect of top-down 'interference'). There appeared to be a base of support and understanding among some administrative units of the requirements to support e-learning; however, there were also concerns on the part of some academic staff that central services would not be responsive to the needs for support required by academics adopting e-learning. Generally, there was mixed awareness of the potential offered by e-learning for providing solutions to the challenges presented by the Bologna reforms, and in particular, the university's move to redesign curricula, based on learning outcomes.

Funding and competing agendas emerged as potential barriers. Some considered that government strategic focus on building up the research profile of Irish higher education through substantial research funding programmes, has proved detrimental to the teaching function, with teaching budgets cross-subsidising research projects, while senior academics are no longer available to teach. The priority in terms of funding and prestige accorded to research over teaching reduces the incentive to increase teaching commitments. The teaching function in Irish universities tends to be poorly funded compared with other countries, and this leads to higher student staff ratios. Over one fifth of academic staff teach classes of over 150 students with subsequent limitations on pedagogical innovation. In effect, there are few, if any, incentives for individual academic staff to take on additional students. Indeed, DCU's small scale is regarded by some staff as a positive attribute of the DCU student experience. There is also a perception that additional income generated by more students may be 'syphoned' to support schools which are running deficits and therefore concern that the resources required to teach the additional students will not be forthcoming.

Following preliminary analysis of the interviews, a questionnaire survey of academic staff was carried out in April 2008. The questionnaire comprised a number of likert scales, as well as open-ended questions, and incorporated two scales developed by SUNY to assess factors which increase or decrease motivation to participate in online learning (Shea 2007). Ethics approval was provided by DCU Research Ethics Committee under the 'Notification procedure as a low-risk social research project in which personal information of a non-sensitive nature is being collected by questionnaire'. A personal email was sent to 542 academic staff members requesting their cooperation in completing the survey which was administered online and data were analysed using SPSS V.15. Following a number of reminders, a total of 139 usable responses were received. The overall response rate was 25.6% with a higher response rate of 35% for Oscail staff (Oscail is the distance learning centre in DCU; the majority of staff are part-time tutors), while response rates for the four faculties ranged from 20.2% (Engineering and Computing) to 24.6% (Humanities and Social Sciences). Four respondents did not indicate their Faculty affiliation. While the use of internet-based surveys has become increasingly common in research, the literature has noted that this has been at the cost of reducing

response rates (Nulty 2008). While the response rate must be taken into account, the survey generated a considerable amount of useful information, much of which confirmed the findings from the interviews and consultations.

Almost 90% of Faculty staff and 100% of Oscail staff have used the VLE Moodle in their teaching, indicating an extremely high penetration of the VLE in DCU modules. However, the most common use is transmitting information, class notes and resources, with relatively low use of the more interactive and innovative features of the VLE. For example, less than one third of Faculty staff (31.6%) initiated online discussions, and just one fifth (20%) assessed online contributions (Oscail tutors make more extensive use of the VLE for teaching and assessment). The general impression of mixed views on the value of e-learning found in the general staff consultations was borne out. The majority of respondents were favourably disposed to teaching online, with Oscail staff, who have greater experience of online learning being more positive (72.7% Oscail and 61.5% Faculties satisfied; 67.6% Oscail and 60.8% Faculties would teach online). However, while most would accept teaching some courses online, the majority expressed a preference for face-to-face teaching (68.6% Oscail and 56.7% Faculties). Over half (51.5%) of Oscail staff agree that students learn a great deal from online courses, compared with just over one third (37.1%) of Faculty staff; however a further one third of Oscail (33.3%) and just under one half (46.4%) of Faculty staff are neutral in this regard, which indicates a strong level of scepticism about the effectiveness of e-learning.

In response to a series of questions aimed at identifying factors which would increase or decrease motivation to adopt e-learning, it appears that the potential to reach new students and experiment with new technologies rank highly as motivating factors, whereas factors likely to decrease motivation are more pragmatic, relating to inadequate technical support, time, and recognition of the work involved. More tellingly, perhaps, is that Oscail staff who are mainly part-time, and paid hourly rates are concerned about inadequate compensation for hours worked. If DCU is to move to greater use of part-time hourly paid tutors, this factor will need to be taken into account.

The successful implementation of e-learning requires not only adoption by enthusiastic innovators; institutional structures must be put in place to support the sustainability and mainstreaming of e-learning initiatives. The majority of respondents supported the development of a university strategy (86.9% of Faculties and 81.8% Oscail agreed), and institutional quality standards (Faculties 85.7%, Oscail 87.8%). There was also general agreement with a Central Unit, to provide support to Faculties (Faculties 83.5%, Oscail 81.8%), but, the importance of academic faculties retaining control over course delivery is indicated by more favourable responses (66% in each case) to the concept of E-learning units within faculties to deliver courses, whereas just over one third of Faculty staff favoured course delivery by a Central unit (in this case, two thirds of Oscail staff who are used to the concept of a separate unit providing programmes are in favour). While collaboration with institutions is favoured by 76.7% of Faculty and 87.9% of Oscail, less than one third of either Oscail or Faculty staff favour outsourcing.

5. Some conclusions

This paper has described a case study of e-learning strategy development in a small traditional university which is attempting to transform its teaching and learning to meet the increasing demands for change and modernisation in higher education. In developing this e-learning strategy, it is vital to (a) have a clear vision of desired outcome (i.e. ubiquitous, lifelong, access to higher education); (b) an understanding of the current capacity and attitudes of the relevant staff and (c) a coherent set of steps to move from the current situation to the desired outcome. It will be clear from the above that there are real obstacles in implementing change in a situation of tight funding and competing priorities. It also has to be acknowledged that while the support of senior management for change is essential, purely top down implementation strategies will not work in the traditional academic environment. The concerns and needs of academics and other stakeholders must also be addressed. In the context of DCU's e-learning strategy, the next steps include adopting a series of actions designed to enhance e-learning capacity through awareness raising, training, funding flagship programmes, and adopting mandatory credits of online learning in all programmes. In addition, a series of institutional structures will be put in place to support e-learning developments, both at central and at faculty level.

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