Developing and Delivering Pedagogically Informed Technology for Meaningful Learning Experiences within Institutions: Action Points for Creating e-learning Centres

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ABSTRACT

The emergence of the information age has allowed the development of networking as a dynamic form of organisation of human activity maximising the explosion in access to information and knowledge. As higher education institutions, being at the core of the network revolution, rush to deploy new technologies, the need to establish sound pedagogical frameworks for enabling authentic learning through technology, becomes even stronger. The aim of this paper is to discuss some of the key aspects concerning the implementation of an e-learning centre within an institution, with an emphasis on the pedagogical principles supporting such an initiative. Our research approach includes a qualitative survey of a set of existing e-learning centres across Europe, looking at their philosophy and organisation. The paper contributes to an understanding of e-learning by advocating a set of action points for setting up and maintaining pedagogically informed e-learning centres.

Keywords

e-learning centres; meaningful learning; implementing e-learning

INTRODUCTION

Institutions of higher education have purposely and seriously begun to position themselves with regard to e-learning. They have made serious efforts to move ahead from the public relations rhetoric of suggesting innovation towards becoming leaders in drafting vision, policies and goals with regard to e-learning. These institutions have begun to question and redefine their conceptions of what constitutes a quality leaning experience in the context of an ubiquitous, mediated communications environment and have begun to understand where they really do add value. The answer to what distinguishes institutions of higher education is increasingly being seen in terms of the context and process of learning (ie community of inquiry) and not access to content. By revisiting their core values and culture, these institutions are recognising a need to change and are realising that e-learning may be the catalyst and means to significantly enhance the scholarly culture and learning environment.

(Garrison and Anderson 2003, p105)

The aim of this paper is to discuss the key aspects concerning the implementation of an e-learning centre within an institution with an emphasis on the pedagogical principles supporting such an initiative. By the term 'e-learning' we mean '*the systematic use of networked multimedia computer technologies to empower learners, improve learning, connect learners to people and resources supportive of their needs, and to integrate learning with performance and individual with organisational goals.*' (Goodyear, 2001)

The paper draws on work within the E-LEN project, funded under the Open and Distance Learning action of the European Commission's Socrates programme known as Minerva. E-LEN aims to create a network of e-learning centres and leading organisations to support a diverse constellation of e-learning centres around the world.

An e-learning centre is defined as:

a unit established for serving the learning needs of students and staff within an institution, for the deployment of innovative curriculum pedagogy and state-of-the-art learning technology in real courses, and for the development of new learning technologies guided by theory and validated by observation of practice. (Steeples & Zenios, 2003)

As such, an e-learning centre has enhancement of the instructional process as one of its key goals. An e-learning centre can offer the following kinds of services: (i) support of academic staff, by working with subject specialists to design and set in place the e-learning infrastructure for a course; (ii) development of e-learning courses, modules or programmes; (iii) production of new knowledge about e-learning; (iv) defining requirements for best e-learning practices and individualised e-learning approaches; (v) provision of pedagogic and technical e-learning solutions, suitable for innovative use in a variety of HE settings; and (vi) helping build next generation e-learning tools and services

A set of action points for creating e-learning centres can help to maximise the potential of an e-learning centre, for enhancing learning and teaching within institutions. There is a strong rationale to identify good practice in the implementation of e-learning. The first to mention is the need for new organizations entering the e-learning field to learn about the know-how, best practices, and rules of thumb for implementing e-learning. Despite the progress that has been made in the last five years in the use of information and communication technologies in education, many institutions and organisations that think of taking the step to implement electronic learning environments, face the problem of not knowing where to start from or what to do.

Secondly, e-learning is currently a growing market and a field of rapid continuous development throughout the world. (According to the market survey by Urdan & Weggen (2001) the e-learning market is expanding from $550 million in 1998 to $11.4 billion in 2003, an annual growth rate of over 80%) It is expected that the labour market requirements of the new knowledge economy will force higher educational organisations to extend the skills of students in respect to knowledge work, "information handling" and information and communication technology (ICT) skills. To make effective use of e-learning methods, and to meet these changing educational needs, groups of universities and other educational and training organisations will have to find ways of identifying and sharing best practices, collaborating in the exchange of competence, experiences, 'lessons learned', tools and materials, etc.

The third reason is the need to establish more e-learning centres and enhance the existing ones. Higher educational institutes and training centres have started to establish e-learning centres: to serve the learning needs of students; to aid faculty and staff in the deployment of innovative curriculum pedagogy and state-of-the-art learning technology in real courses; and to develop new learning technologies guided by theory and validated by observation of practice. This is happening in all of the countries of Europe, though at very different rates of progress. There is an explicit need to create more e-learning centres in each educational institution, corporate company or other organization in order to serve the ever-increasing demands of the new economy. Furthermore existing e-learning centres need to be changed for the better by adopting best practices from their peers, in order to enhance and adapt to constantly changing e-learning demands.

METHODS

To understand more about key aspects and issues facing an e-learning centre, we have undertaken a qualitative research study of seven established e-learning centres that are based in higher education institutions across Europe. We have looked at the administrational, managerial, pedagogical, technical, research and developmental characteristics of these e-learning centres. The survey has examined the common issues met and how problems are resolved among established e-learning centres.

Data were collected primarily through telephone interviews with leaders of e-learning centres using a structured set of questions. As part of data collection, the web sites for each of the participating e-learning centres were also examined. The data produced from the interviews and questionnaires and from the web sites has been analysed around a set of thematic questions. Seven aspects were used to create a framework for the survey questionnaire and these were: a centre's services and activities; its resources, including its staff; the administration and management of an e-learning centre; the quality assurance mechanisms in place; success stories and problem areas within centres; and growth and future plans.

FINDINGS FROM THE SURVEY OF E-LEARNING CENTRES

In our comparative analysis of the qualitative data gathered, we have identified a number of interesting themes, namely: the range of purposes and services provided by an e-learning centre; the role of research within the centre's activities; the organisation of the e-learning centre's work around projects; and the diversity of staff roles and responsibilities within an e-learning centre.

In exploring purposes and activities, we focused on the aims and objectives of the e-learning centres, that is the goals and mission set out by the head of the centre or its staff. We looked out where research into e-learning would figure in the aims and achievements of the e-learning centre, since the implementation of an e-learning

centre within an institution is regarded as an innovative step, suggestive of an interest to support teaching and learning in new and innovative ways. The relationship between the level of research remit and the organisation of work within the e-learning centre was explored indicating a continuum between attempts to develop learning-driven technology solutions in collaboration with academics and broader integration of e-learning into curricula. This analysis sketched the roles that staff undertake to meet demands upon the centre as well as the skills and competences required for these roles. A typology of kinds of e-learning centre has begun to emerge, based around the purposes that respondents identified to us for an e-learning centre. We have used these types to structure the presentation of our findings.

Type A: A support or service role kind of e-learning centre

This kind of e-learning centre is one in which an emphasis is put on the e-learning centre having a 'support or service' role within an institution. This kind of e-learning centre has the enhancement of the instructional process as central to its goals. This includes that the staff of this kind of centre will normally work with subject specialists to design and set in place the e-learning infrastructure for a course. This infrastructure includes e.g. learning materials, study guides, specifications for individual and group learning tasks and the various ICT tools needed by the learners and their teachers. It is important to note that while this kind of e-learning centre may have research as part of its activities, the research orientation is not in the foreground of its mission.

Much of this kind of centre's staff time is likely to be spent on one-to-one consultancy work in developing applications and learning resources through collaborative projects with academic staff. It is typical that academic staff initiates much of this kind of centre's work , that is, their activities are often determined by users or 'bottom-up' driven. Other academic-related activities are likely to include staff development work including running e-learning workshops and away days on the use of learning technology with some evaluation work of existing applications also likely.

In most centres of this kind we found their work was primarily organised around projects. However, in one case we found that projects were developed through a 'competitive proposal process'. The process begins with an academic who works on an outline idea and this is formalised through submission to the competitive proposal process. Successful outlines are then further developed with centre staff. The process was found to be useful for the centre for prioritising its actions and in helping to change the perceived role of the centre from a service role, as available for all to use, to a role involved in selective development activity, but with guaranteed support to the department involved. This funding mechanism was seen to also act as an incentive for departments, using the funding to buy out academic time from regular teaching to spend on teaching development work. It was also suggested this process helped ensure projects were realistically funded and scoped.

Staff within support type of e-learning centres regarded its work as valuable in encouraging academics to be more creative in their teaching and in finding ways to inspire learners and improve teaching quality. It was suggested that the centre's work helped academic staff to rethink about their teaching and support of learning *per se,* as well as considering how to use technology for teaching and learning. In terms of technological benefit, it was suggested that the centre's work was valued for helping staff in using ICT tools. For students it was believed that the centre's activities helped support flexible patterns of learning such as increasing support to part-time learners; encouraging learners to work more independently and to be more creative; and for widening access to resources.

Staff within the support or service role kind of e-learning centre felt a strong need for clear lines of reporting and for their centre having a clear place in the institutional structure. They expressed a strong need for there to be a 'sense of fit with the institution and its teaching and learning strategy'. Another common issue raised was to do with time and demand for their support services. All centres of this kind felt under pressure to meet the aims and objectives of the centre especially to meet the demands from academic staff to develop and support them in running e-learning courses. Centre staff also identified the danger of mismatches in or unrealistic expectations as more academics wanted to make use of e-learning. Consistency in quality of support across all users and more systematic handling of queries and maintaining contacts were mentioned as current and ongoing challenges. Tighter control over what the centre staff were doing and being more selective about projects was also stated as needed. Two interviewees mentioned the need for systematisation of work processes, allowing tracking of progress and tracking of resources. The outcome of this sense of an ever increasing workload was the need to formalise the ways used to stay in touch with users to ensure coherence as the impact of e-learning grows. Staff also commented upon the crucial need to keep centre staff with scarce skills in place, suggesting the need to pull skills together so that centre staff can cover for each other.

Maintaining or improving the quality of service while under increasing pressure especially to respond to immediate academic needs was commonly stated as an issue for this kind of e-learning centre. The growth and

increase in activities had also led to an increase in immediate but primarily technical kind of problems, often requiring immediate responses. Centre staff commented upon the very real danger of them becoming a help desk service.

Some centre staff identified the need to overcome user perceptions that the e-learning centre had a technological focus rather than a pedagogical one as a current challenge. One interviewee commented that the location of the centre and the line management and structure had influenced this perception. In this case, the centre was physically located close to the IT support services and the centred head reported to the director of IT services. In another centre, there existed also a linked educational development centre (with a clear remit regarding pedagogical matters) leading to an inference that the e-learning centre would have more of a technology focus than a pedagogical one. In institutions with a central virtual learning environment (VLE), we found there was some pressure put on the centre staff to meet targets in take-up use of the VLE.

Other issues included the need to encourage a sense of ownership for, and commitment to, e-learning developments at departmental level. Keeping up with technological developments and knowing how best to respond and allocate time equitably when there were strong variations in demand from the different faculties or subject areas were also expressed as concerns. For example, one interviewee commented that development work for the sciences tended to be more complex, and more time and technically demanding.

Type B: An innovation role kind of e-learning centre

This kind of e-learning centre has an innovation in e-learning role within an institution: that is, innovation in the instructional process is central to its goals. This includes that the centre staff will normally work with faculty co-ordinators to develop existing online course management systems and efficient virtual learning environments and integrate them into teaching and learning. This kind of centre provides pedagogic and technical solutions and helps build next generation learning tools and services. Its staff often organise direct training of faculty members in the use of learning technologies. It is also important to note this kind of e-learning centre is also highly likely to have research as a key and even integrated part of its activities. This centre supports integration of e-learning processes across faculties focusing on research, development of learning technology tools and evaluation of e-learning experiences.

The innovation role kind of e-learning centre is likely to have a strong organisational structure and quality assurance mechanisms in place. It is likely to be well resourced through direct and regular annual funding from the university and from financing of developments created within centre eg through re-investing in the centre products.

A continual challenge that the innovation role kind of e-learning centre faces is explaining the pedagogical benefit in using technology across faculties. To a lesser degree, dealing with a number of technical problems such as upgrading the VLE was identified. Similarly to type A the centre deals with variation in demand within different faculties and faces the same need to attract and keep in post development staff, with an appropriate mix of pedagogical *and* technological skills.

Type C: A course development role e-learning centre

This e-learning centre has a course development role within and possibly outwith an institution as central to its goals. This includes that the staff of this kind of e-learning centre will normally work collaboratively to prepare content and produce teaching materials for a course as part of developing learning events. In the centre interviewed their work primarily concerned geographically dispersed students. It is important to note that while this kind of e-learning centre may have research as part of its activities, the research orientation is not in the foreground of its mission.

The centre's staff are involved in developing learning materials, writing text books, running the course portal and supporting students. The content of the courses and the way they are run are evaluated against a set of recommendations. Other forms of evaluation take place at monthly board meetings together with the director and the research director. These are informed by students and project partners' views which are collected by using questionnaires.

The centre's work was seen to be informed by the qualities of open and distance education: these being flexibility, autonomy and self-directed learning. The centre suggested value in its work in supporting life-long learning and offering flexibility in meeting student needs. The main challenge faced by this kind of centre is increasing competition in the area of distance learning.

Type D: A research role e-learning centre

This kind of e-learning centre has a research role foregrounded in its mission. This means that the centre staff will normally work on a number of research projects eg exploring the relationship between new technologies and development of new attitudes, and investigating the conditions for management of e-learning activities. This kind of e-learning centre is likely to have the following goals: producing new knowledge and defining requirements for best learning practices and individualized learning approaches, with a view to helping the university maintain its leadership position.

In the centre interviewed we found it to be working in partnership with private companies and public institutions to implement and evaluate experiences in e-learning and assess impact of new media in education. It was involved in examining and testing new tools.

Within all types of e-learning centres a broad range of skills is required among staff in order to achieve aims and objectives, designed to interface between research, pedagogy and technology. The four types of e-learning centres described above clearly indicate different notions and practices towards developing e-learning experiences within institutions. Drawing from the above analysis, we next begin to outline some action points for creating e-learning centres that are emerging from this study. We believe these points will be useful as ways to help maximise the potential of e-learning centres, in terms of enhancing learning and teaching within institutions.

ACTION POINTS

In the E-LEN project, we are currently creating a set of action points that will be taken forward into a guidelines document on setting up an e-learning centre. Action points are issues needing to be addressed in the upstream stages of planning an e-learning centre. In this paper we are able to present some initial ideas for action points. These points are presented briefly below.

The need for a pedagogical framework

An e-learning centre needs to have a clear pedagogical framework that identifies and specifies the philosophical beliefs and values that underpin all aspects of the centre's work and development activities. The centre team need to be able to identify common values and beliefs eg about learning, in order to take a principled approach to their design and support of e-learning. This will encourage building good pedagogy into all design and development processes (Steeples, Jones & Goodyear, 2002) and foreground the need for systematic attention to pedagogical issues in design of e-learning.

The need for an institutional strategy for e-learning

An institutional strategy for e-learning is critical. A strategic approach is essential to ensure e-learning has the best possible chance to succeed, because of the many stakeholders and variables in the mix. All UK HE institutions now have a strategy for teaching and learning in place, but how many of these strategies, and to what extent they take account of learning mediated through technology, is much more sketchy. An e-learning strategy is needed to give a forward vision for the institution, to help internal collaboration and to help align pedagogical, business and organisational processes (Ford *et al*, 1996).

Senior managers must be centrally involved in the development of an e-learning strategy and in the implementation of an e-learning centre. Senior management can promote the purposes and work of an e-learning centre to help give it a high profile within the institution. Senior management need to grasp the significance of developing and using technologies for teaching and learning. Integral to an institutional e-learning strategy is the need for an institutional infrastructure to be put in place, allowing students and tutors to readily access resources and support. The institutional e-learning strategy also needs to align organisational structures to centrally locate the e-learning centre, particularly in terms of its management, reporting mechanisms and quality assurance processes.

The need to systematise and generalise activity for wider take-up

Systematic production processes are critical, to ensure developments in e-learning that are likely to be complex are properly funded and not under-resourced. This is especially true of complex and expensive multimedia projects that commonly take much longer than anticipated.

It is important that the e-learning centre activities are not trapped or bounded within limiting projects. There is a danger in staff spending their time on small-scale developments with no planning for the longer-term use of learning technologies beyond the funding period. This will diminish the opportunities for embedding and sustaining the development and for creating possibilities for reuse and adaptation to other teaching and learning situations across the institution.

The need to develop staff and student skills in e-learning

A key role of an e-learning centre must be to support the development of e-learning skills in institutional staff. In particular, the development of staff skills in facilitation and management of online learning environments is essential. There is also a need to develop student skills in learning to learn in less passive and more interactive ways. The e-learning centre can assist learners and academic staff by providing the necessary guidance and support. Specialist skills and expertise are also clearly needed for among staff working within the e-learning centre. There are dangers in individual staff developing highly specialised skills and knowledge especially among a small e-learning centre team. Staff with skills and understanding that bridge between pedagogical and technological areas are most valued.

The need to exploit new media in integrated ways

If the centre's work is to be exciting, stimulating and forward-looking, it is important not to use technology simply as a substitute media for traditional teaching and learning functions. To do so would be to miss the opportunity presented by technology for new kinds of teaching and learning support. There is need to pedagogically re-engineer courses to take account of new characteristics when technology is used and related learner needs. For example, the use of technology provides the centre with the ability to support teaching and learning operating both on- and outside campus and for academic programmes to reach geographically dispersed beneficiaries.

CONCLUSION

A major goal of most educational organisations today is to infuse technology throughout the instructional and administrative dimensions of the organisation. This has required not only the development of new levels of ICT knowledge and skill by academics and administrators, but has also resulted in changes in the role of the learning technology specialist and led to the formation of e-learning centres.

The typology of kinds of e-learning centres and the suggestions for action points towards creating e-learning centres will inform a principle deliverable of the E-LEN project: the Guidelines for e-learning centres document. This document aims to assist people in setting up an e-learning centre to enhance learning and teaching through the implementation of technology within institutions. The document will outline models of how   established e-learning centres have been set up. It will suggest useful pedagogical approaches and identify the kinds of issues faced and the pitfalls to avoid. It will attempt both to advise the institution at policy and planning level, as well as offering practical advice to practitioners.

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