New Horizons for Higher Education through e-learning

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1 Introduction

The past decade in the field of higher education has been marked by initiatives of historical significance. These strategic endeavours were the Bologna process on higher education, the Lisbon strategy of the European Union and the related eEurope, e-learning and lifelong learning initiatives and programmes.

Over the past few years, the world of higher education has been the subject of intensive challenges. In an accelerated, globalised environment, the pressure to perform placed on institutions and graduates by employers and the corporate sector has increased. This pressure has resulted in an increase in efficiency, restructuring and innovation, but it has also contributed to strengthening flexibility.

There is increasingly intensive competition in the professional and social space, which is now occupied by higher education, both from the corporate education and training side and from the side of other educational sectors. The internationalisation element has also strengthened and reinforced global competition among universities.

According to Curran, e-learning strategies adopted by universities have been approaching the core issue from the perspective of three common objectives:

- Widening access to educational opportunity;
- Enhancing the quality of learning;
- Reducing the cost of higher education.

Evolved distance education is an increasingly common term used in the sense of traditional, professional, well-established distance education settings, such as open universities, which have been evolving continuously by integrating new approaches supported by ICTs. Whilst open and distance universities put the main emphasis on the learning organisation and instructional design approach, with the increasing performance, availability and affordability of ICT-based tools, the way in which they function has been changing considerably through the integration of e-learning elements.

As far as the innovation aspect is concerned, distance learning has always been characterised by creativity on the part of the educators and administrators who provide distance study programmes, characterised by access, choice and flexibility options for students.

2 State of the art – and the way leading to It

What was expected?

Since the mid-nineties, there has been a sort of ongoing enthusiasm concerning the potential and impact of ICTs in learning. The arguments were related to efficiency, cost-effectiveness and access issues with the traditional ICT-supported training approach. Later on, the model of learning in networked systems became a cutting edge concept.

It is worth recalling the approach of the EU Minerva programme in the late nineties, which recommended the “critical and responsible use of technologies” regarding the use of new ICT tools in distance learning.

ICTs have formed part of the expectations regarding the large-scale transformation of higher education, which was expected to become more inclusive, international and flexible. Less emphasis was put on innovation; however, the change in learning systems was part of the accompanying conceptual and strategic expectations.

Techno-positivism has also been present in the field of evolved distance learning, but has been counterbalanced by solid methodology and pedagogical traditions: instructional design, distance and open learning solutions have been proving their relevance in a well-established institutional and organisational environment. The access issue was a strong argument, along with expectation regarding the impact of information technologies.

The progressive vision of "mega-universities" (John Daniel) has formed part of leading concepts in the field, shifting the focus of interest to the extension of the distance learning and institutional e-learning system, as well as to the new approach to the more efficient use of methods and toolkits.

Highlighting lessons learned in the context of large-scale programmes in institutions, progress in terms of establishing a public reputation and academic credibility in distance education has been an important element. The concept was also intended to communicate the fact that such large-scale international institutions could help to recognise that distance education was widely acknowledged and accepted as an effective delivery tool in most countries.

In attempting to create a cost-effective means of delivering knowledge in line with the mega-university concept, economies of scale and other industrial models for producing education have been applied, whilst also acknowledging the fact that lifelong learners require specific instruction that meets their needs. The principles of product leadership, customer intimacy and operational excellence, as well as learner support, have been important in the development of new distance education endeavours.

Particularly in the e-hype period, there were significant expectations about e-learning and its potential to support virtual mobility, with the hope that it would form part of the greater transformation of higher education, becoming more inclusive, more international and more flexible.

The following innovation paradigms in virtual mobility can be identified:

- Mobility of identities in a new space called virtual space or cyberspace
- The process of virtual cooperation of learning providers
- The mobility of learners or learning facilitators
- The mobility of learning devices such as "learning that follows you" or mobile learning (which is not, however, associated with virtual mobility in mainstream research)

The EU e-learning programme helped to structure and conceptualise the broad spectrum of different efforts and schemes. The lifelong learning strategy and programme confirmed the approach of support for open and flexible learning solutions, including technology-supported learning. The overarching Lisbon strategy supplemented this by creating and maintaining an atmosphere of progress and modernisation.

Improving and implementing pedagogical approaches that support self-organised learning and utilise the potential provided by information and communication technologies and e-learning in lifelong learning are seen as concrete means of contributing to the Lisbon strategy.

ICT-supported learning was welcomed by higher education institutions as a strong modernisation message. Education policy-makers liked it because of the progressive perspectives and assumed transformation potential. In the public sphere, huge investment programmes were needed and implemented for equipment and networking infrastructure developments.

With access and quality as keywords relating to the international urgency for serious "university renewal" in the context of booming cross-border education expectations, new willingness among education providers was required to redefine models for delivering knowledge. Political attitudes towards higher education have put pressure on government and regulatory groups to promote policies for lifelong learning while cutting costs and increasing availability.

In the hierarchical, somewhat conservative, elitist atmosphere of universities, the increasingly better positioning of lifelong learning and technology-supported (mostly atypical) teaching solutions, along with the gradual acknowledgement of distance education, has brought open learning, distance learning and e-learning out of the ghetto. The incorporation of e-learning concepts into institutional strategies and increasingly national policies has also confirmed the move into the mainstream.

In support of the modernisation of education, large-scale public investments in computer technology and networking infrastructure were made at practically all of the institutional levels, but probably most intensively in higher education. In the meantime, the development of pedagogy and methodology and course development issues lagged behind considerably.

The emergence of lifelong learning has ensured a natural supportive environment for the field of evolved distance learning. The massive public investments in IT equipment and networking infrastructure in the education and training sector have supported the establishment of a technology background. Partly spontaneous, partly organised, the supported development of digital literacy and skills (among potential users and teachers) contributed to the dissemination and expansion of sophisticated solutions.

What happened?

With easier and cheaper access to higher performance ICT tools and networks, we can observe a proliferation of creative (initially experimental or pilot, but later integrated) ICT solutions. The high performance solutions on the market became more and more affordable, the technical performance of tools dramatically improved and the spectrum of solutions widened. There has been a relatively slow but huge penetration of different technology tools and solutions in learning and teaching practice. As a rule, this has come from the students, the users, and has been initiated to a lesser extent by the teachers or the institutions.

The ever stronger diffusion of increasingly sophisticated ICT solutions is changing the governing praxis and, slowly, the institutional structures. A sort of spontaneous penetration of ICTs in the learning domain has been accelerating beyond expectations. The non-institutional progression and adaptation pathways, as well as individual and informal actions, have played an important role.

One decade ago, it was stated that it would be more accurate to regard the growth of e-learning as a process of evolution rather than as a revolution. Nowadays, it seems that expectations about the revolution were somewhat exaggerated, linked to ambitious early e-learning visions. It was also expected that, with the development of e-learning, most higher education institutions would develop and implement a strategy for its use. This expectation probably still sounds too ambitious.

Nevertheless, recent analyses and system critics acknowledge that, at undergraduate level, ICT-supported solutions are largely supplementary to classroom teaching. ICT is primarily used to support existing teaching structures and traditional ways of tuition.

The roll out process may currently be observed: moving on from small-scale use by early adopters, more universities implement projects that roll out e-learning across the entire university population and courses.

The incorporation of the e-learning 2.0 approach into mainstream education did not progress as intensively as initially expected. Meanwhile, in the informal learning field, the collaborative behaviour of learners and the related tools developed. Positive progress was observed in the quality and accreditation of e-learning in higher education.

With the IT transformation-driven change of the traditional research structures, new collaboration and networking concepts and approaches emerged. New technology and methodology paradigms have transformed the scenario of learning solutions (social web, exploratory learning), accompanied by learning games and infotainment.

While many universities see lifelong learning as an emerging priority, there is little evidence that strategic actions have been taken to consider their missions or to anticipate the challenges ahead. Questions arise regarding the recognition of prior learning, which needs to be addressed. The implementation of Bologna reforms seems to have taken priority over developing lifelong learning strategies.

In relation to access, while almost all institutions consider increasing participation to be important, their expectations in terms of being able to contribute to this development are rather low. This demonstrates the importance of government policy in this area and the need for incentives, all the more so given the obligation felt by many institutions to improve competitiveness by attracting the best students; they sometimes falsely believe that this precludes improving the diversity of the student base.

Evolved distance learning, particularly from the perspective of open and distance universities, has maintained its position and most of its prestige. The response to the modernisation demand and digital challenge differed depending on the country. In the meantime, one can recognise the emergence of the generation of ICT-based development programmes in all institutions, which have a clear impact on the organisational and institutional strategies.

It is acknowledged that user habits and distance learner profiles are changing significantly, with high expectations for engagement. Many of the e-learning 2.0 trends are closely related to the change in user habits in ICT. The Internet as the platform, or the multi-device oriented system, changes the concept of studying in any place and at any time. However, these tools in many cases are only used as repositories of educational examples, resources, videos, links, or files.

Whilst the increasing dominance of e-learning in distance education (DE) and a certain convergence phenomenon can be observed, the use of ICTs as a learning resource and communication tool has not quite been distinguished from e-learning. Meanwhile, the traditional paper-based DE has almost disappeared, and mainly electronic (evolved) DE can be observed.

This has occurred in two ways:

a) Digital delivery of "printed" material

b) Re-engineering of the former curricula and material to offer online interactive resources with a variety of support, communication and face-to-face opportunities.

In higher education, institutional structures still tend not to allow managers and university directors to invest serious money and human resources in developments needed to achieve interactive self-paced material. Therefore, e-learning is often built into the tuition process, according to academic traditions. In the meantime, knowledge centre networking has been weaker than expected, and the expected virtualisation of universities did not really develop either.

Regarding virtual mobility, there is no real elaborated policy in this domain – the only exceptions are the achievements of some EU projects. The aim of equality in terms of access to international higher education has practically been forgotten. Only a few universities are really committed to virtual mobility in a longer-term perspective. Student associations are not opposed to the idea, but are not particularly supportive of it either.

Problematic parts and weak points in related policies and innovative practices include the fact that there has indeed been no real policy and financial support, and it is still difficult to make universities from different countries agree on content and methods. The lack of integration in the Bologna process agenda is also a problem.

3 What is the new interpretation on the role of ICTs in innovation?

While distance-learning and distributed learning continue to expand, e-learning encompasses far more. Not only does it involve methods for mass or long-distance dissemination of courses or materials to students, but it also places an emphasis on enhancing active learning, research-led learning and teaching, small-group teaching, and collaborative work. The focus is on fostering student independence, self-reliance, self-motivation, critical abilities, creativity and other characteristics.

The application of new technologies to the existing academic activities is becoming a standard element of institutional practice. Students naturally expect the availability and seamless functioning of such tools and services. The efficient central provision of facilities and support is a precondition for the successful adoption, integration, and development of e-learning practices, whilst the departments continue to work at their own developments and the institutional policy must accommodate those needs as well. Recognising and evaluating the benefits and costs of e-learning is an essential step and forms an integral part of institutional practice.

The recent term rhizomatic learning refers to the collective intelligence and rich user experiences that affect the concept of authority in educational systems. Dave Cormier (Rhizomatic Education: Community as Curriculum) refers to a "rhizomatic-knowledge creation process" that is overtaking traditional models. (A rhizomatic plant has no centre and no defined boundary; rather, it is made up of a number of semi-independent nodes, each of which is capable of growing and spreading on its own.) The term encapsulates a sort of fluid, transitory concept; the dense, multi-dimensional development and integration of several different sets of tools and approaches, appearing in diverse forms under separate settings, using all the multidimensional networking information technology tools, the social web, etc.

We should notice that the strength and the weakness of this approach is at the same time, that the content and the competence are legitimated by the collaboration in the networked system.

4 Recommendations

- Education systems are presently determined in the context of globalisation: systems are judged against the performances of education systems elsewhere, thus constant discussion with others and benchmarking performance against that of others is a necessity. Creativity, innovation and competitiveness are essential context elements. The demographic context is increasingly significant in the EU. The scarce resources must be used in a sustainable way.
- The strategic choices for education policy in the EU include a commitment to life-long learning and the necessary implementation of student-centred learning. ICT has much to offer to student-centred learning. In the evolved DE sector, due to its close relations to distance learning, these elements have been strongly present from the beginnings.
- Web-based tools are rapidly becoming the norm and content is accessed via portable devices. Technologically mediated communication, fluency in information and visual and technological literacy are becoming the norm; however, such literacy is not formally taught to students. The proliferation of tools that

enable co-creation, mashups, remixes and instant self-publication is recreating the traditional model of academic publication.

- The gap between students' and faculty members' perception of technology continues to widen. The renewed emphasis on collaborative learning is pushing the educational community to develop new forms of interaction and assessment. Higher education is facing a growing expectation to deliver services, content and media to mobile and personal devices. Education and training institutions should be prepared (many of them are already) to integrate this into their course delivery portfolio.
- Quality assurance has much to contribute to both lifelong learning and student-centred learning. Ways of identifying and certifying non-formal or informal learning should be found and it should be possible to assess credibly what has been learned.
- New business models are needed and education has to become pioneering itself by developing innovative tools for teaching and learning. Technology and structural developments are also supported by the emergence of new business models and situations, moreover by the uptake of financial capital in the sector.
- On the social side, the subject of the digital divide, particularly that related to the age gap, has been receiving greater attention.
- Significant shifts in academia, research, creative expression and learning create a need for innovation and leadership at all levels. Institutions are faced with a need to provide formal instruction regarding information, visual and technological literacy, as well as how to create meaningful content with today's tools.
- From a technology perspective, the following areas seem to be most important at present:
    - Technology: mobile e-learning; faster speeds via broadband and satellite; improved computer power and affordability.
    - Courseware: improved delivery systems that are compatible across computer platforms.
    - Digital literacy: greater investment in opportunities for people to step on to the e-learning platform.

  The increasing performance of tools and networks has resulted in an increasingly structured and institutionalised impact on delivery and access, but also on the functioning of educational institutions and systems. The emphasis has shifted towards acceleration of the broadband, access, ubiquitous and personalised learning issues, etc. Web 2.0 and social networking tools are increasingly being adopted for educational use. Access to and portability of content is increasing as smaller, more powerful devices are introduced.

  Calendars, contact databases, photo and music collections, etc. are increasingly and commonly stored on mobile devices. The effect of new displays and increased access to web content through the new devices can be observed.
- The momentum of the existing increased attention to virtual mobility in order to build intercultural dialogue, support the internationalisation of curricula and promote cooperation with third country universities (as an alternative to "brain-draining" strategies) should be maintained. Within the EU, virtual mobility is starting to be seen as a potential component of the Bologna process, bringing together joint titles in a cooperative way (rather than relying upon recognition of national degrees in different countries).
- At universities, in support of virtual mobility, there is a need to provide good information and advisory services. Better use should be made of technology for the better integration of existing services, particularly essential business services.

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