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The introduction of e-learning in European universities: models and strategies

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Digitaler Campus

Vom Medienprojekt zum nachhaltigen Medieneinsatz in der Hochschule

WAXMANN

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Benedetto Lepori, Lorenzo Cantoni, Chiara Succi

The introduction of e-learning in European universities: models and strategies

Abstract

The aim of this paper is to present the models and the strategies of adoption of e-learning in a group of European universities, most of them located in the regions called "the four motors of Europe" (Baden-Württenberg, Catalunya, Lombardy and Rhône-Alpes) and in Switzerland. Our analysis focuses on four dimensions: the rationale behind the introduction of e-learning, the organisation of the activities and, in particular, the existence of a university centre for e-learning, the type of activities, and, finally, the type of public reached by e-learning.

The majority of campus universities in our sample introduced e-learning to improve the quality of education of their students and, for the most part, as a support for existing courses. Some of the campus universities went even further insofar as they have introduced some online courses into their curricula. This has led to forms of cooperation where different universities share some of their courses. Finally, a small number of campus universities have included as part of their educational offer full distance degree programs which can be attended also by non residential students. The above cases show that there is no general move from campus universities towards distance education, but rather a more selective behaviour. Thus we conclude that e-learning, although it is undoubtedly spreading in both distance and presence universities, is not yet bringing fundamental changes in the institutions themselves. E-learning is at the moment integrated into the existing organization and educational offer.

1 Introduction

It is increasingly well-recognised in political discourse that the adoption of e-learning[1] represents one of the most important phenomena in the development of higher education institutions (CEC 2001). The use of ICT is seen as "the single most important change driver in education and training systems" (Coimbra Group 2002), alongside being an opportunity for universities to modernise and answer the social and political pressure towards wider access to higher education and

1 In this paper we use the term e-Learning as it is defined by the Commission of the European Communities: "the use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaboration" (CEC 2001).

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lifelong learning. Thus, there is a large body of official documents that stress the importance of developing coherent strategies for introducing e-learning in higher education and propose measures in this direction (CEC 2001). Also, a rather large body of literature (especially from the USA) emphasizes the dramatic changes in the higher education system caused by the diffusion of new educational technologies, as well as the need for universities to radically change in order to stand both the social pressure and the competition from online universities (Bates 2000; Hazemi et al. 1998; Rowley et al. 1998).This picture is, however, less clear when we analyse the strategies of individual universities.

A recent review of the adoption of educational technologies in higher education shows that "higher education institutions do not expect revolutionary change as a result from or related to the use of ICT" (Collins & Van der Wende 2002, p. 7) and that they mostly use ICT as a way to improve existing teaching activities, rather than to replace them, or to access to new educational markets through distance education. Moreover, case studies on the adoption of e-learning show a large diversity of strategies and practices which seem to be related to the setting of each national higher education system and to the mission and the history of the individual universities[2]. Continuity and diversity seem thus to be the two major features of the adoption of e-learning in the European universities. This raises a series of questions:

- can we reduce diversity or, in other words, can we identify a set of models of adoption of e-learning in (European) higher education institutions? According to which dimensions can we describe these models?
- can we clarify diversity and identify those factors explaining why individual universities choose one of these models? How are these factors related to the individual history of the institution, to its organisation or to its (national or regional) context?

This paper aims to contribute to this debate by analysing how a set of 27 European universities in five European countries (Italy, France, Germany, Spain and Switzerland) are introducing e-learning into their educational activities. These results were collected by interviewing people in charge of e-learning activities in these institutions. Since we analyse a set of case studies through a common framework in order to further the general understanding of a given subject, our method can be described as a collective case study (Stake 1994). The paper is organised as follows. Section 2 analyses the concept of hybridization between campus education and distance education as a way to explore the adoption of e-learning by universities. In section 3, the methodology and the sample of the study are presented. Section 4 discusses the four dimensions we have chosen to describe our case studies – i.e. the rationale behind the introduction of e-learning,

2 See the case studies published in the special issue of the "International Review of Research in Open and Distance Learning" on the Hybridization of Higher Education, January 2002 (online at: http://www.irrodl.org/content/v2.2/editorial.html) as well as the presentations at the European Conference: "The New Educational Benefits of ICT in Higher Education" (Wende & Ven 2003; Kallenberg & Ven 2002; online at http://www.oecr.nl/conference/).

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the institutional organisation of e-learning, the existing e-learning activities and, finally, their target public – and discusses the main results of each dimension. Section 5 identifies a set of trajectories for the introduction of e-learning and shows how the choice between them is related to the original mission and organisation of each institution[3].

2 The hybridization of higher education

Our analysis of the introduction of e-learning in higher education will be based on the concept of hybridization. This means that the two modes of delivery of higher education previously separated – i.e. presence and distance education – tend to converge. A whole range of intermediate ("hybrid") educational offers are, in fact, currently developed thanks to the introduction of new learning technologies (Lewis 2002). We can analyse hybridization according to two parameters, i.e. the type of public and space, and the mode of delivery of education (Cantoni & Di Blas 2002). The first parameter relates to the overall mission and strategy of the university, while the second pertains to the level of the delivery in each specific educational activity (e.g., a university course).

a) According to the first parameter, hybridization means that the markets for distance education and for education of university students on the campus are not clearly separated any longer. Besides the traditional distance education universities (based on textbooks and surface mail, like the Open University and the Fernuniversität Hagen) which introduce ICT in their courses, we find a whole range of "virtual universities" offering courses or degrees to non-residential students (Guri-Rosenblit 1999). These include dual-mode universities (offering both on campus and distance degrees), mixed-mode universities (where students follow both courses in presence and distance learning), extension services, distance educational degrees presented by consortia of campus universities, and new virtual universities based on ICT (Guri-Rosenblit 2001). In other words, many campus-based universities are developing new educational offers targeted to non-campus students for accessing new potentially profitable markets (especially in corporate training), finding a niche in an increasingly competitive environment, or responding to social and political pressures (Cookson 2002).

b) According to the second parameter, hybridization means that the traditional distinction between presence teaching (based on face-to-face lectures and tutoring) and distance learning (based on printed textbooks) is becoming increasingly blurred (Perret 2003). The two modes were never completely separated: thus, for example, many students on the campus do not attend lectures, and textbooks produced for distance education have been used also by campus universities. Yet,

3 This research has been realized in the framework of the mandate Educational Management in the Swiss Virtual Campus (EDUM; www.edum.ch); we wish to thank the Swiss Virtual Campus programme (www.virtualcampus.ch) and the Università della Svizzera italiana (www.unisi.ch) for their financial support.

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new learning technologies have pushed hybridization to a new dimension. On the one hand, thanks to ICT, distance learning is acquiring some features of presence education, like synchronous communication (e.g., through videoconferencing) and interactivity between teachers and students. On the other hand, some features of distance education, like course materials available online or electronic communication, are increasingly used also for the students on the campus (Lewis 2002). So-called "hybrid courses" combine face-to-face teaching with computer-based distance education[4]. Moreover, in mixed-mode universities students can attend some course completely at distance, while other courses are still taught through face-to-face lectures. Face-to-face and distant provision of educational content are no longer alternative, but we see the development of a whole range of delivery methods (often overlapping) used by students in different circumstances.

According to our two parameters, we can then represent these processes as the combination of three movements (figure 1)

- A: campus universities are entering with the help of ICT into new educational markets, offering courses and degrees also to non campus students;
- B: campus universities are introducing into their educational offer for residential students some features of distance education, like online courses or hybrid courses which are taught in presence only partially;
- C: distance education institutions are introducing ICT to enhance interactivity between teachers and students – both synchronously, e.g. videoconferencing, and asynchronously –, as well as to deliver contents online (instead of through surface mail), hence reducing the "distance" itself.

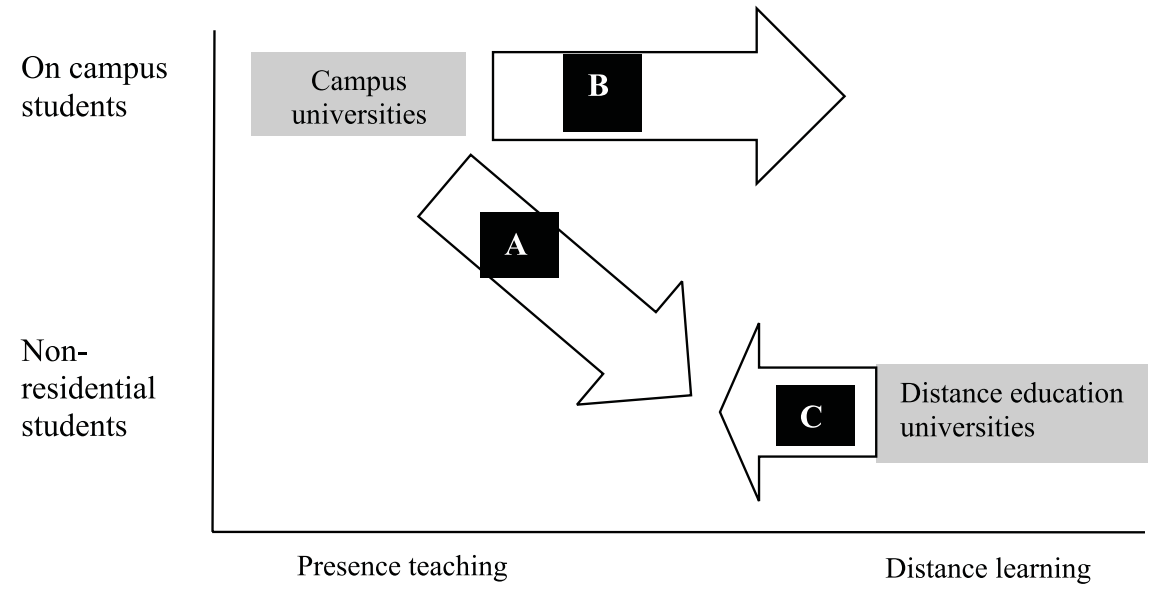

Figure 1. Hybridization and the impact of new learning technologies

4 ""Hybrid" is the name commonly used to describe courses that combine face-to-face classroom instruction with computer-based learning. Hybrid courses move a significant part of course learning online and, as a result, reduce the amount of classroom seat time" (University of Wisconsin Hybrid Course Project; online at http://www.uwm.edu/Dept/LTC/hybrid.html). See also: http://www.mcli.dist.maricopa.edu/ocotillo/hybrids/ index.php.

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The above framework does not imply that all the differences between distance and presence education are disappearing, but rather that the higher education space is redesigned, and that new kinds of educational offers and institutions are emerging in some specific areas. Moreover, given that higher education institutions have consolidated structures and educational practices, this process takes place largely through the evolution of existing institutions and thus it is largely dependent on their past history.

3 Methodology

The research was articulated in two phases. Firstly, in spring 2002, we sent 52 questionnaires to make a quality benchmarking. After the analysis of the results, we focused on the most interesting institutions by means of 26 in-depth (face-to-face) interviews in spring 2003. We have selected all the universities of Switzerland and of the regions belonging to the Four Motors for Europe consortium[5], that is, Baden-Württemberg, Lombardia, Rhône-Alpes and the Spanish Catalunya. These are among the most developed and dynamic regions in Europe, with a high level of scientific and technological development. Further similarities among them are suggested by data on their geographic area and population. The starting sample consisted of all the 52 Universities located in these five areas. The benchmarking phase used a questionnaire structured in two parts aiming respectively at collecting general information about each University, and assessing the perception of the quality of their e-learning processes on the basis of the 24 Quality on the Line benchmarks (Phipps & Merisotis 2000). We received 31 out of 52 questionnaires. The main outcome of this phase is that, while technological infrastructures are in place and managed adequately, a major effort is still needed to design and implement tools and processes for evaluation and assessment. Maybe due to the fact that e-learning is very recent, many institutions are focussing more on the creation of a suitable environment for it than on its evaluation. Moreover, as long as e-learning is offered through single and isolated initiatives (Bates 2000), the question on its medium-term economic and organizational sustainability cannot be properly answered (Cantoni & Succi 2003). Secondly, we organised 26 interviews with people working in some of the most active institutions. In this case, we also selected some institutions outside the “four motors” in order to better understand the national settings. We had 12 interviews with the institutions reached by the questionnaire. 3 additional institutions were visited (Paris III, Paris X, FernUniversität Hagen) and 11 (out of 12) Swiss Universities were interviewed. In this set we can identify different higher education models. Besides twenty-two campus universities, there are two distance Universities (UOC and FernUniversität), as well as two Universities with a distance education department (Paris III and Paris X).

5 www.baden-wuerttemberg.de/interreg/e_.organisationen/interregional/int_org_vmfe.html.

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4 Major results

The results of the 15 interviews in France, Germany, Italy and Spain are summarized as follows. Note that, in order to avoid a falsification of some of the results due to the dimension of the sample, the 11 Swiss interviews are sometimes integrated in the analysis, but sometimes described apart.

4.1 The rationale behind e-learning

The literature on the subject suggests many reasons for introducing new technologies in education (Bates 2000) like, for example, improving the quality of education, reducing the costs and/or getting new revenues, accessing to new educational markets, and supporting the process of modernisation of the universities.

The European Universities visited declared that they implement e-learning activities to enhance the quality of teaching/learning processes (87%). Only in a few cases they mentioned economical issues (13%). Differently from many American institutions, European universities do not want to get additional revenues from educational activities and, in many of the interviews, this was seen as contrary to the university's mission and ethos. Some distance education institutions as Hagen or Paris X inserted new technologies to cut some costs (printed papers, telephone calls,…) but never to earn more money. This does not mean that there are no innovative uses of new technologies. These are introduced to respond to precise institutional needs and they are employed according to the original mandate of the University. For example, the Universitat Oberta de Catalunya had the mission to promote the use of Catalan language and its culture in Spain. Here, new technologies help to achieve this purpose. Paris III decided to offer a global access to their knowledge at distance: new tools as WebCT or some videoconferencing software make this more effective. All the Swiss Universities stated that they are not looking for new students and that they do not think of new media as a means to enlarge their educational market (except, in some cases, for corporate training).

4.2 Organisation

In almost every university (21 out of 24) e-learning activities are controlled by a centre dedicated to new technologies for education. These were created for many reasons and they cover different functions. We found a model where institutions create a centre for e-learning activities, but, despite the existence of the centre itself, the implementation of e-learning can be quite decentralised. In other cases there are bright teachers who start the implementation of new technologies and then ask the university direction for funding to enlarge it. These centres could be

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classified as service centres (e.g.: Lyon 1) that test some tools and make them available to the teachers, as development centres (e.g.: Universitat Autonoma de Barcelona) which try to find and propose new learning solutions or as didactical centres (e.g.: Universitat de Barcelona Virtual) which themselves realise educational products by employing competences and teachers from other university departments. We found also three institutions without a specific centre, while in the two distance education institutions (FernUniversität Hagen and UOC) e-learning is a core activity and it is managed from the university direction.

4.3 Activities

The universities that adopt new technologies in their teaching activities can be placed on a continuum between the substitution and the integration of "traditional" activities (Cantoni & Di Blas 2002).
We can distinguish in our sample four main levels of introduction of e-learning:

1. Almost all universities provide some (software) tools that the teacher can ask to use, and to be trained in and assisted in the utilisation.
2. A group of institutions (10 out of 26) offer a space on a platform (commercial or homemade) where professors can find some services (calendar, forum, library, etc…) to integrate their lectures.
3. 27% of the institutions offer some courses completely online that, as such, can be seen as an alternative to lectures or textbooks.
4. In a few cases, like at the Politecnico di Milano or the Universitat Autonoma de Barcelona, we find entire degree programs online that are open also to non-residential students,

4.4 Type of public and space

The type of public and the space reached by universities are important factors to be considered in understanding how e-learning is introduced. On the one hand, universities might improve the quality of education through e-learning by keeping students as the same target public; on the other hand, they can widen their educational offer and try to enrol different categories of students thanks to the use of new educational technologies. In our sample, e-learning activities are provided for students on the campus (23 out of 27 universities) and for students outside the campus. The category of 'non-residentials' can be divided in two subgroups: "different" undergraduate students (8 out of 27) like workers, disabled persons or housewives who want to attain the same educational degree as campus students, and long-life learners (3 out of 27). The situations observed are very different, but a common element can be found: campus universities develop e-learning activities for external students where there is a particular interest to reach, for example, a market niche. Thus, the Università degli Studi di Milano has created an online

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course in mathematic for higher school students that the University intends to enrol in the following years.

5 Towards a taxonomy of institutions

To summarise, if we visualise the presence Universities (P) and the distance Universities (D) on one axis, and the adoption of new technologies (NT) on another axis, we can identify some behavioural patterns adopted by Universities. We standardize the NT introduction on the time line (t), although each University inserted them in slightly different periods and for different reasons. This happened in fact between 1996 and 2001 (Cantoni & Succi 2003).

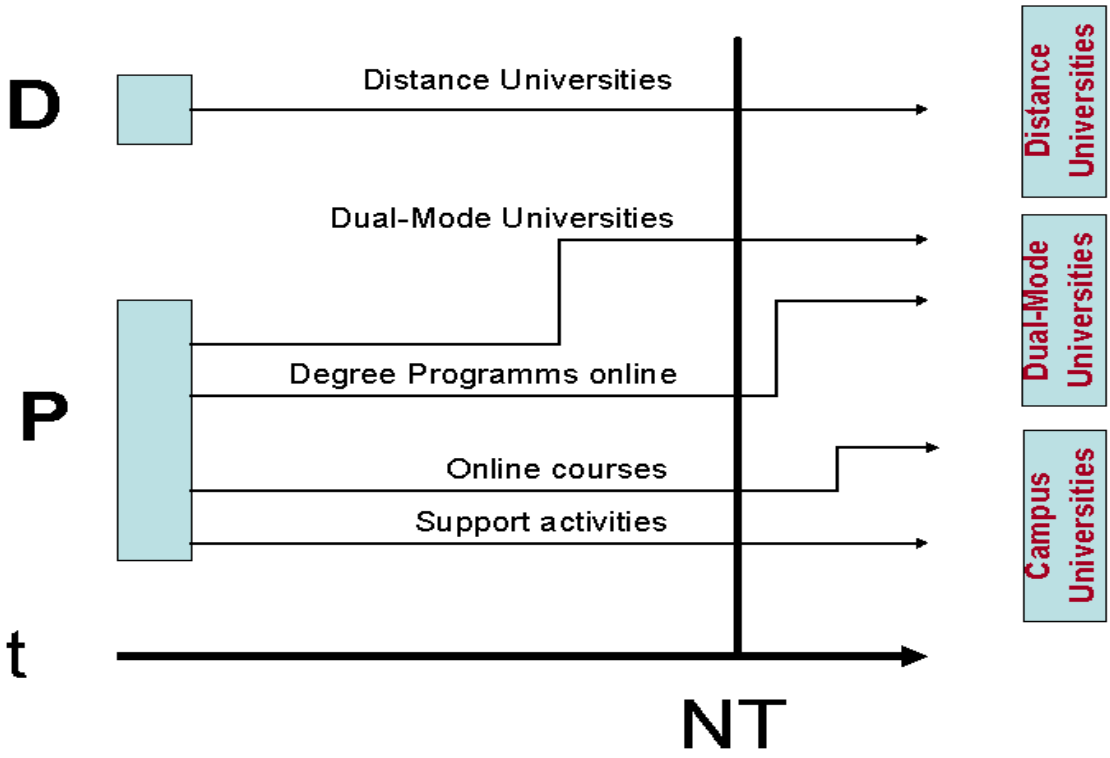

Figure 2: the five behavioral patterns of Universities

We can characterise the behaviour of the analysed institutions as follows.

a) Distance Universities. We have two examples in our sample. FernUniversität Hagen was opened before the diffusion of e-learning and it is now introducing new technologies to manage all the teaching/learning processes more efficiently. On the contrary, Universitat Oberta de Catalunya offered all educational activities through Internet from the beginning, and it intends to replace with e-learning all the services and processes of a presence institution.

b) Dual Mode Universities that offer courses for both students on the campus and external students. In the '70 two campus universities (Paris III and Paris X) have created a department to deliver distance education. They found some advantages with ICT and they are now introducing them as an alternative for the

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delivery of some degree programs. Also, a small group of campus universities is using e-learning to offer courses for external students. Politecnico di Milano designed a full degree program online in order to experiment new possibilities and new management models, and to attract new students. In the case of Università Cattolica, two degree programs are delivered by satellite videoconferences that connect 5 Campuses and 13 affiliated buildings. Universitat de Barcellona created a centre of online courses for corporate training. The courses are expected to reach also the Latin American market. Here, technology seems to foster the move towards dual mode-universities and the access of campus universities in the distance education market. Yet, our results show that this development takes place only where the concerned universities identify a specific niche market which matches their strategies and resources. There is no general move from campus universities towards distance education, but rather a more selective behaviour.

c) Campus Universities introduce e-learning at very different levels, ranging from the simple support to face-to-face teaching, to the delivery of full online courses. For example, Università Statale di Milano and Universitat Autonoma de Barcelona identified some activities to be delegated to online courses like, for example, the training of new matriculates or the optional courses in common with other Universities. Other universities integrate new technologies as a support to improve existing courses. The major part of our sample is experimenting and evaluating platforms or software.

Our conclusion is that, while e-learning is undoubtedly spreading both in distance and presence universities, it is not for the moment bringing a fundamental change in these institutions. Rather, it is being integrated into the existing organisations and educational offer. Universities adopt ICT not in accordance with a general (normative) strategy that they should reconvert to e-learning, but rather with a more pragmatic approach: technology is introduced to respond to clearly identifiable needs or opportunities (e.g., for new educational markets or for cutting costs in the case of distance education), and/or where it does not require a profound modification of their organisations. This also explains why the large majority of campus universities introduce e-learning to support and improve presence teaching, rather than to replace them. Additionally, in the European context, the merging of the presence and distance educational market seems to be a rather marginal phenomenon. These results do not mean that in the long run there will be no large changes in the higher education system. Yet, these changes will be much more gradual than often recognised. Again, their driving force is not the introduction of new educational technologies, but rather the strategies of each institution both at the level of its direction and of each institute and teacher.

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