

STORIES ABOUT INNOVATIVE PROCESSES IN HIGHER EDUCATION: SOME SUCCESS FACTORS

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ABSTRACT

Previous studies have explored e-learning innovation in higher education from a number of different perspectives: virtual campus implementation, ICT in higher education, web-based learning and teaching, and teacher training. Our research aims to study the processes of pedagogical and technological innovation (for example e-learning, blended learning, collaborative learning, constructivist scenarios) and thereby to identify some key factors in these processes, with particular emphasis on the factors for success at the institutional level.

Keywords

E-learning, Higher education, innovation

INTRODUCTION

Previous studies have explored e-learning innovation in higher education through the relation of a number of different examples: virtual campus implementation, ICT in higher education, web-based learning and teaching, teachers training, etc. These studies allowed to describe a number of innovative practices. After these experiences, it is now time to propose guidelines and quality criteria that will enable actors to favour the success of their educational projects taking into account their own context.

The research we conducted is based on data gathering from four Institutions¹, through interviews of actors engaged in the process of introducing e-learning in these Institutions. According to what we said above, we² had the will not to limit ourselves to a descriptive approach. We looked for means to analyse the processes that would enable us to identify the determining factors, the main steps, the required resources, the actors and their roles. Then we permitted ourselves of questioning these elements regarding the objectives of Higher Education and the recent evolution of these objectives. We actually think that the expected effects of the introduction of e-learning³ must be measured before all in relation to the purposes of Higher Education. By describing, analysing, comparing the stories told by the actors of the introduction of e-learning, we identified some gaps or blanks in these stories: the fuzziness of objectives, the little amount of attention paid to the way practices are affected, for example. We then put in perspective our analyses of the stories told with the possible intentions of the introduction of e-learning and with the consequences of the actions undertaken. This process brings to evidence some success factors for the introduction of e-learning in Higher Education. In the following body of this article, we present our position regarding the

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² We as the authors of this article and also active actors in the introduction of e-learning in our different Institutions, and not belonging to the set of interviewees

³ E-learning is understood here in its broader meaning of learning and teaching systems, processes and activities using ICTs.

purposes of education for our learners; we shortly describe the four Institutions, the data gathering process and the analysis method. Then we describe the contexts, the steps, the resources, the actions, the actors and their roles; finally, as a conclusion, we suggest some success factors or the introduction of e-learning in Higher education. Doing this, we limit ourselves to a single level, the one of the Institution, not taking into account the level of the pedagogical scenario, developed elsewhere.

FOR WHICH PURPOSES DO WE WANT TO INTRODUCE E-LEARNING IN HE?

We have said that our will is to relate the processes and effects of e-learning introduction observed in the four HE institutions we have studied with the main educational objectives of higher Education. Why and what for do we want to introduce e-learning in HE? Simple questions require often complex answers. HE is nowadays confronted to number of changes that could justify the introduction of e-learning. M. Lebrun (2002) has developed an analysis of these changes grounded on interviews conducted with several actors concerned with the definition of the educational objectives (University Presidents, corporate managers, politics, students, etc.). Thus, he has described possible external criteria for the evaluation of the efficiency of HE. As a background, he underlines the changes observed in the knowledge required and particularly the necessity to develop in addition to the other conceptual and procedural knowledge les “savoir devenir” et “savoir être” required to face the uncertainty of the situation met in the professional and personal lives. Research realized about the evaluation of the e-learning tools and products has shown their efficiency to support the development of this knowledge (A. Mac Dougald, 2001).

As a synthesis of his study, M. Lebrun suggests four main trends to be followed:

1. The importance of the qualities of the system in which learning will occur: namely source of authentic challenges and base for a reflection about the learning processes and products. The characteristics of these HE systems are described in the report of N. Entwistle (2003).
2. The importance of the excellence of the sources of information and of the development of competencies to access, analyze and evaluate these data.
3. The importance of the competencies related with the communication and collaboration with peers and experts.
4. The importance to know his/her own abilities and needs to be able to define and realize his/her personal project.

One can easily imagine the potentiality of e-learning methods and tools to address these needs: development of blended learning support for the emergence of learning communities (F. Henri & Pudelko, 2003); access to data and experts, etc.

METHODS AND CONTEXT OF DATA GATHERING AND ANALYSIS

Data were gathered through the telling of stories and interviews within the four institutions in order to illuminate our understanding of the pedagogical and technological agencies in each of the institutions and the processes to support innovative projects, virtual campus or resource centre initiatives, including strategic vision, inception, implementation and development. The purpose of this data strategy was to take into account different viewpoints of key actors in the respective institutions.

Methodology of analysis

We used category analysis techniques to study the discourse of a range of actors in our study (teachers, students, administrative staff, and technicians). From the analysis, we thought to determine common factors, critical events, enabling processes and actors within the rich tapestry of institutional contexts and policies of the European universities included in the research.

The context of the study is the following higher education institutions: University of Louvain, Belgium; University of Liege, Belgium; EM Lyon, France; University of Fribourg, Switzerland.

The Catholic University of Louvain-la-Neuve and the Institut de pédagogie universitaire et des multimédias (IPM)

The UCL (Catholic University of Louvain) comprises a large international community : 20 000 students of 120 different nationalities, a staff of 5000 professors, researchers, and collaborators, 200 research units, and 130 000 alumni all over the world. The UCL offers the complete set of faculties and is educating one out of two academics in French-speaking Belgium, in all fields. At the UCL, the Institut de pédagogie universitaire et des multimédias (IPM) is an interfaculty service. It coordinates and promotes initiatives to improve teaching methods. Institute objective is the improvement of the university teaching. This objective is carried out by university teachers pedagogical training and by offering them a large variety of pedagogical resources (material and above all human like technical support and pedagogical follow-up). In the same spirit, IPM ensures the coordination, the animation and the diffusion of pedagogical initiatives and promotes them through the FDP (Fonds de Développement Pédagogique, Funds for Pedagogical Development) whose financial amount ranges around 0,6 M€ yearly. IPM coordinates also a broad range of activities concerning technological uses for learning and teaching (including e-learning and ODL), developing so effective expertise and consultancy in this domain. The university gives his financial support for the development of Claroline, a worldwide known e-learning platform, developed within IPM. Claroline is used as the centre of iCampus, the service for e-learning development in UCL.

E.M.LYON, a brief overview of French Business Schools status and organization

E.M.LYON is a French School of Management. Its mission is to offer participants and firms a wide variety of opportunities to acquire and improve their management expertise and entrepreneurial competencies throughout their lives. E.M.LYON, alike the other French Business Schools, is independent from the University though the programs are accredited by different organisms such as the French Conférence des Grandes Écoles and the European EQUIS (AACSB accreditation is in an on-going process). It houses 2 000 students and 4 500 executives in continuing education programmes each year. Permanent Faculty (about 90 professors) and staff (300 people) have a private sector status. More than 400 visiting experts are also lecturing yearly. To accompany the development of business on certain high-growth markets, E.M.LYON offers a variety of international exchange programmes such as Double and Joint degrees, semester exchanges, programmes devoted to doing business in Latin America and Asia-Pacific. It can rely on representative offices in England, Latin America and China. The global "e-learning" project at E.M.LYON was initiated by the General Manager of the School. It was launched in September 2000. It started with the idea of developing distant learning modules addressing all the disciplines of a Management Program. Soon it appears that there was a need for a system to house and deliver these modules, and to administrate the participants' learning processes. A beta-test released was opened in January 2002. The first operational release was delivered in June 2002. A training program was held between June and July for the Faculty and staff. In September 2002 all the course catalogue (around 1700 items) was available on the Virtual Campus. During year 2002 three users' groups – included one made of students - continue to work for continuous improvement of the Campus, plus a special group dedicated to e-pedagogy. Academic year 2003 started with the content and organisation that was implemented in 2002, thus showing the first productivity enhancement brought by the Virtual campus, apart from other advantages.

The University of Liege and the Laboratoire de Soutien à l'Enseignement Télématique (LabSET)

Founded in 1817, the University of Liege is the only public Community-sponsored university in the French-speaking part of Belgium which offers a complete range of university courses at undergraduate and post-graduate levels. It is divided into 8 faculties, 45 departments and 450 research units. The University of Liege receives 14,000 students including 2,100 foreigners from 80 different countries. It also comprises 50,000 alive alumni. Staff comprises 3,200 employees, including 450 professors, 2,000 researchers and 800 administrative and technical support staff. The university is a centre of attraction for the region, an intellectual, cultural and economic centre. At the University of Liege, the LabSET contributes to the development of the distance learning by helping teachers and trainers to design, develop and evaluate their own courses and activities on Internet. Staff ensures technological and pedagogical watchfulness and combine the possibilities of distance learning to enhance traditional teaching. LabSET gathers and brings together bid of distance courses and distance continuing education and manages teachers and students' access to the virtual campus.

The University of Fribourg and “Centre de Didactique Universitaire et Nouvelles Technologies et Enseignement”

The university of Fribourg (UniFR) is the bilingual university of Switzerland (German and French): 10'000 students in initial training, 3'000 professionals in adult education yearly, a staff of about 800 professors (35% from foreign countries), researchers and scientific collaborators, 200 research units. The UniFR offers the complete set of faculties (Science, Literature, Law, Theology, Economics and Social Science) and is inserted into a federal system with a cantonal autonomy. UniFR is presently adapting to Bologna system for BA and MA formations. At UniFR, the “Centre de Didactique Universitaire et Nouvelles Technologies et Enseignement” is in charge of the integration and valorisation of the use of ICTs into teaching and of university pedagogy. First, the Centre Nouvelles Technologies et Enseignement (NTE) was created in 1996 with the aim of developing e-learning and was, at this time, the first one in Swiss Universities. Then, in 2002, the actual unit was created by extending the Centre NTE and enlarging its role while including university pedagogy. A Teaching Commission is the decision group for the unit, regrouping one vice-University's President, representatives of the different faculties and of the unit. The main activities of the unit are e-learning project support (pedagogical and technological), teacher training (workshops and university pedagogy post-diploma) and valorisation of results, products and experiences. Today, staff is composed of 9 to 10 people, regrouping pedagogists and computer scientists, for a total of 500% full-time equivalent.

E-LEARNING IMPLEMENTATION: FROM BACKGROUND TO PROSPECTS

In this section, we describe the stories using chronological categories and indicate Key Success Factors (KSF) identified in each story. The complete KSF list is presented in the next section.

Background

In each institution, the actors related favourable conditions for the inception of e-learning. This background relies on congress and meeting, foreign success model, research projects and international collaboration, roundtable and workgroup, or also isolated teaching initiative.

“Some research projects involving teachers dealt with more sophisticated e-learning, for instance in 1997 an European collaborative learning distance device (LEARN-NETT project).” [ULg, KSF2]

“In 1995, the Round Table of European University Presidents and Industrials emphasizes the new skills needed for professionals of tomorrow. The way university students are taught has to change!” [UCL, KSF2]

“From years, UCL has been concerned by the quality of teaching; several work groups and commissions have been created to think about it and make propositions.” [UCL, KSF1]

“At the end of the seventies and in the beginning of the eighties, some pioneers started to use computers in their courses, but those practices were very isolated. Generally, the use of the computer referred to some Computer Assisted Instruction (CAI) sequences developed by the teachers themselves.” [ULg, KSF2]

But background also relies on infrastructure and e-culture of the institution.

“But it is only at the beginning of the nineties that the SEGI [Service Général d'Informatique] – an institutional department of informatics support – provided more information on the Internet and a larger access to the members of our institution (teachers, researchers). In the nineties, some rooms were equipped with computers in free access for students.” [ULg, KSF15]

Inception

It is usually some visionary people who give a boost to the e-learning resource centre or the virtual campus.

- On one hand, we have got institutional stakeholders.

“It was a top-down policy, with quick dead-lines and high level expectations from the general management. This dynamic was not really disturbing for me, as far as it allowed us to start acting and stop discussing endlessly” [E.M.LYON, KSF1]

“In 1995, a new University President arrives, who cares about pedagogy and wants things to improve in this domain.” [UCL, KSF1]

“Quickly the President of the University of Liege emphasizes the importance of a general politics about e-learning in our institution. (...) A work team wasn’t enough obvious.” [ULg, KSF1]

“One vice-University President thought ICTs could indeed bring a large added value to universities” [UniFR, KSF1]

- And on other hand, we have got the “founders”.

“But the request came mainly from us. I met the University President at several times with my boss.” [ULg, KSF3]

“a work group, composed of a vice-University President, a professor in science of education and a professor in computer science (...) at the same time a commission was set up where each faculty was represented” [UniFR, KSF3]

Then first actions were implemented.

“The IPM is created. In the first months, work groups are set up to define what would be the missions of this new institute.” [UCL, KSF4]

“In 2001, from workteam the “LABoratoire de Soutien à l’Enseignement Télématique” (LabSET) becomes an institutional department of pedagogical support for the e-learning at the University of Liege.” [ULg, KSF4]

“A wish to give his university a small experimental centre” [UniFR, KSF4]

Start-up

After this stage of inception, investments could be made. First, interdisciplinary staffs were created and practitioners are hired.

“It was decided to place a centre at the intersection of science of education and computer science” [UniFR, KSF4]

“Those groups are composed of teachers particularly involved in pedagogical thinking. They put light on active teaching methods and ICT for supporting learning.” [UCL, KSF4 & KSF5]

Usually another investment concerns equipment and substructure, e-learning design tools, shared virtual learning environment...

“Teachers need tools to give resources (texts, links, analysis grids) and information (pedagogical scenario and instructions) to the students, to interact quickly with students” [UCL, KSF6]

“The UCL virtual campus is born, named iCampus and a teacher is engaged as a new IPM members to coordinate this iCampus” [UCL, KSF3]

“We had to negotiate with the general department of informatics support for hosting a Management Learning System on their server.” [ULg, KSF6]

Different policies can support different kind of projects.

“A lot of teachers develop their own web sites, alone or with the help of the IPM technical staff or with an assistant specially devoted to this particular initiative (by the way of university fundings).” [UCL, KSF7]

“2 main projects were supported simultaneously, each one taken in charge by the 2 professors in science of education and in computer science” [UniFR, KSF7]

“There was a training which aim was to present all the available tools. But once you are designing a course, the training is not sufficient, because it is not included in the professor's project” [E.M.LYON, KSF10]

Origins of funds impact the development direction of the resource centre or the virtual campus.

“Before its “independence”, fundings of LabSET came often from outside the university and so they benefited to the external projects and partners, and not to the university.” [ULg, KSF8 & KSF9]

“Once the Virtual Campus was implemented, the General management considered that e-learning should be self financed” [E.M.LYON, KSF8 & KSF9]

Developments

During the development of the resource centre or the virtual campus, some events can change the direction of the initial project. These events have positive or negative effects on the project.

- They could be external events linked with European and national policies, market pressure; collaborations and partnerships, etc.

“The NTE centre (...) received mandates from the SVC, as the Edutech mandate, which allowed to have supplementary collaborators, thus to enlarge the centre” [UniFR, KSF8 & KSF9]

“As a consequence, it was no more possible, from 2000 and until 2003, to develop local projects” [UniFR, KSF9]

“We work with other schools and other people from Higher Education who don’t have enough funds. So we should take another Management Learning System cheaper in addition to WebCT.” [ULg, KSF8 & KSF9 & KSF6]

- or they could be also internal restructuring and decision. T

“The SEGI supplies some informatics tools. It provides i.e. Internet access and e-mail hosting to all teachers, researchers and students. Recently it has developed a portal to enhance communication and information exchange in the University’s community.” [ULg, KSF6]

“The University of Liege develop a general politics to centralize librarian resources and promote virtual library.” [ULg, KSF12]

“The iCampus coordinator dreams of creating a new platform, very simple, developed in an interactive way with the demands of the users.” [UCL, KSF6 & KSF13]

“A last important event into the development of the NTE Centre is the proposition that Berne finances a position for a professor in university pedagogy” [UniFR, KSF8 & KSF9]

“The NTE Centre was truly institutionalised, before it was depending on the President’s office, (...) now on a faculty” [UniFR, KSF12]

These initiatives, projects and developments lead to concrete realisations: virtual campus, online courses, demo projects...

“LabSET gathers and brings together all the isolated initiatives of e-learning in its University. It promotes sharing of good practices. It supports the use of the e-learning platform WebCT and provides technological and pedagogical help in putting courses on line.” [ULg, KSF6 & KSF13]

“iCampus is now supported by Claroline. With the new userfriendly platform, more and more teachers use iCampus to introduce ICT in their courses.” [UCL, KSF6]

Prospects

About some impact on teaching and learning...

“With these tools, the work of the students begins to be more proactive: the students have to investigate, to do small research, to produce synthesis themselves. The teachers also develop new ways of doing (“accommodation” and “assimilation” phases) becoming also more and more proactive” [UCL, KSF11 & KSF16]

“Use of distance learning and teaching methodology are very different from one teacher to another. So it is very difficult to assess the impact on the students.” [ULg, KSF16]

The different actors of the implementation e-learning have no guarantee about the future of their centre, their campus or their roles.

“From several years, the fund for pedagogy projects has allowed to engage two more persons in the iCampus group, to continue developing the platform and helping the teachers to use it. But this fund is reassigned each year...” [UCL, KSF12]

“What about the money dedicated now for Virtual Campus when the program stops? Will it come back to the NTE Centre to support local projects? Perhaps the President’s office decides in 2008 that it is attributed somewhere else.” [UniFR, KSF12]

“The durability of our statuts is linked to the idea of an institutional strategy because it clearly shows that the service we offer is not at all one unimportant activity” [UniFR, KSF12]

“The University of Liege keeps up a paradox: on the one hand, the authority said “yes” to e-learning by creating a resource centre, but, on the other hand, it doesn’t provide the teachers opportunities and resources to develop their courses with this support.” [ULg, KSF12]

Next step...

“NTE Centre could make only services, (...) is would be a pity, (...) NTE people must be allowed to publish, to make research and (...) also to give courses” [UniFR, KSF14]

“the minimum is to keep a technology watch centre (...) so that university does not fall behind” [UniFR, KSF14]

“The iCampus coordinator, Claroline’s father, wants Claroline to become wideworld spread and to sell services around this free platform.” [UCL, KSF14]

Prospects depend on policies that could be taken by the institution or the national policy-makers.

“to define a direction that seems better, more efficient when taking available means into account... to maintain a bottom-up strategy (to keep individual initiatives and ideas) and to integrate it into a top-down strategy (to develop a coherent action)...” [UniFR, KSF12]

“After SVC perspectives are centred on what university of Fribourg will want and be able to do. Then a strategy should be defined in particular with the help of the Teaching Commission. Constraints (budget, number of people) to be taken into account to say: we should go into that direction...” [UniFR, KSF12]

“In some countries pedagogical initiatives are considered as equivalent to scientific publications, in an academic career. Under international pressure, this evolution will be inescapable for Belgium.” [ULg, KSF13]

KEY SUCCESS FACTORS OF E-LEARNING INTRODUCTION INTO HE INSTITUTIONS

Through every considered institution, e-learning shows some invariants in its implementation and its development. These invariants issue from the interview as background, actors, resources, events, etc. Depending on each institution, its story is more saturated by one or another invariant.

Key Success Factors List

1. Visionary people
2. Preliminary experience and resource
3. Key persons : the expert practitioner (in a team)
4. Resource centre favouring access to Computing x Pedagogy competencies
5. Places of discussion, valorisation and collaboration
6. Common tool for all the teachers allowing the realisation of their projects (Computing x Pedagogy)
7. Variety of projects and usages at diverse levels : “small” starting projects, e-learning is no expensive project
8. Funds for pedagogical development (FPD)
9. Support and pressure of external environment
10. Teacher training : Computing x Pedagogy, linked with teachers’ projects, through experiments
11. Initiative liberty for teachers and experimentation place
12. A clear, explicit, coherent and continuous pedagogical action of authorities : objectives, strategies, funds, promotional politics (valorisation of teaching)
13. The institution highlights pedagogical innovation (in particular introduction of ICTs)
14. Articulation of research and service
15. Infrastructure for logistical means (equipped rooms, computer availability, etc.)
16. Culture of teaching and of ICT’s use in teaching (thinking on usages)

A cross-case analysis shows which key success factors appears in the story of each institution. Thus, we could see that from the beginning, existing resources and experiences as well as key visionary people play an important role. At this level, the capacity for the manager of the institution to recognize these experiences seems crucial (Alter, 2000). The inception is strongly supported by visionary people who have a key position at the head of the institution. We have not enough data concerning the exact vision of these people. The creation of resource centres is also an important step but as it has been shown in another research (RECRE@SUP, 2002) it seems not to be related with a clear strategic vision and that makes problem for the centre to define its own identity. The start-up and development are more diverse. One could underline the importance of the development of projects by collaborative teams where practitioners and resources centre members play an important role as well as common tools offered to the teachers. Here, we find some recommendations underlined by Fullan (1993, 1999). In the prospects, some effects are seen on the practices and cultures. But the more surprising observation is the lack of a clear, explicit, coherent and continuous pedagogical action of authorities: objectives, strategies, funds, promotional politics, valorisation of teaching (KSF 12). Eventually, we can also find some interesting commonalities with the results of a similar research done in four secondary schools in Belgium (Fontaine, 2001).

CONCLUSIONS

In our experience as experts and practitioners we found other key factors that are not expressed by the actors we have interviewed. Some important ones are related to the attitude of the different actors regarding the innovation. A systemic approach has been developed namely by (Charlier, Daele and Deschryver, 2002), considering e-learning not only as a technological innovation, accepting diversity, crossing bottom up and top down actions, acting at the level of the infrastructure, the curriculum and the administration, valorising the initiative of the teachers. To pursue our investigation, we intend now to validate these key factors and to link them with indicators of the effects of e-learning on the main objectives of HE.

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