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Web-Education Systems in Europe

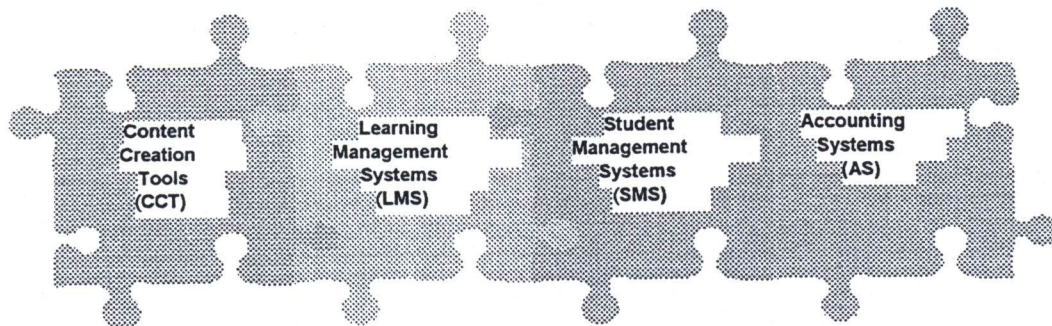


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Learning Management Systems (LMS) used in Southern Europe

By Ana Dias, Paulo Dias and Pedro Pimenta

Abstract

This part of the study refers to Southern Europe. Research and interviews were applied to a number of institutions, experienced in e-Learning and using Learning Management Systems (LMS) to support their e-courses provisions and e-Learning structures.

A total of 21 interviews were carried out all over the concerned countries – Portugal, Spain, Italy, France and Greece.

A Southern Europe overview puts in evidence the regions figures in terms of Internet users. In fact 17,5% of Southern European population uses Internet, much less than the 50% of Internet users in the Nordic Countries, the 33% in North-western Europe, the 30% in Germany, 10% in Czech Republic (similar to Portugal and Greece).

Interviews include 11 self developed LMSs and 5 commercially available LMSs. From the commercially available LMSs in use, 4 Institutions use Web – CT (3 are Universities), 2 other Institutions use Blackboard, 2 other use Learning Space and one institution uses Docent and another institution uses Intralearn.

There are a total of 561 online courses that are using the 16 LMS systems. Important is to note that 4 institutions have from 1 to 3 courses, 7 institutions have from 4 to 15 courses and only 10 have from 16 to 85 courses. These mean that 50% of the researched institutions have less than 15 courses online.

There are a total of 470 online tutors and a total of 41296 only students.

At present there is a tendency to organise and structure the e-Learning offer using a type of software somewhere classified as Learning Management System. Those systems are dedicated to some issues of the learning process, but in almost all the cases (commercially available systems or self developed) the systems are not able to perform all the activities the institutions need. Administration aspects, integration with existing software and content management are some of the issues not well treated by most part of the LMS studied.

Language is a main issue in Southern Europe and LMSs not translated to Countries languages can be easily unsuccessful.

The research also led us to observe that most part of the e-Learning managers assume a position of experimentation and initiation on the e-Learning process (50% of the researched institutions have less than 15 courses online).

An overall evaluation allows us to observe that the commercially available platforms can be very practical to start with but they have problems with linguistic issues, as well as with assessment tools adequacy to target groups and pricing.

Own developed systems are simpler and directly related to the target groups; they surpass the linguistic problems of the commercially available platforms and are constantly updated, being able to improve their features according to trainers, trainees and administration evolution. Besides the linguistic advantage national

marketing strategies together with competitive pricing contribute to the great use of those own developed LMSs.

Another important issue is the Universities e-Learning managers concern with the University policy and strategies for this field. Apparently Southern European Universities are not dedicating enough importance and attention to this subject.

1. Methodology

This part of the study refers to Southern Europe. Research and interviews were applied to a number of institutions, experienced in e-Learning and using Learning Management Systems (LMS) to support their e-courses provisions and e-Learning structures.

This analysis is based on in-depth, qualitative interviews applied to leading e-Learning Managers from institutions located in Southern Europe. A total of 21 interviews were carried out all over the concerned countries – Portugal, Spain, Italy, France and Greece. The interviewees were selected first by the demonstrated experience in the e-learning field and then according to their availability to answer to the interviews. The interviews were carried out via e-mail, phone or face-to-face. The researchers involved in the interviews used also the institutions web pages and included information collected from there. Some of the interviews were made in Portuguese, Spanish and Italian and then translated into English. Other interviews were done directly in English (France and Greece).

The interview guide was developed by the international research team according to criteria of functionality and utility of the research.

The interview guide was focusing its attention on the following topics:

- Institutions and LMSs;
- Course Development Tools;
- Tutors support tools;
- Administrative systems;
- Technology;
- Price;
- Overall evaluation;
- Future features to include in existing LMS systems

2. Southern Europe Overview

Southern Europe can be characterised as a region with different countries, communicating in different languages in a relatively small geographical area.

Portugal, Spain, France, Italy and Greece occupy an area of 1,577,373 Square Kilometres, with a population of 177,6 Million People, speaking 5 completely different official Languages, independently of other less spoken languages in those countries.

According to data available from Eurostat and presented in table 1, there are 31 Million of Internet users in Southern Europe, representing 17,5% of the population.

Table 1. Country, Official Language, Inhabitants and Internet penetration

Country	Language	Area (sq km) ¹	Inhabitants (millions) ²	Internet hosts (per 100 inhabitant) ³	Internet users (per 100 inhabitant)
Portugal	Portuguese	92 391	10.2	1.2	10.0
Spain	Castilian	504 782	39.5	1.4	13.9
France	French	547 030	59.5	1.7	16.9
Italy	Italian	301 230	57.8	2.7	23.3
Greece	Greek	131 940	10.6	1.0	9.5
Total		1,577,373	177,6		

The number of Internet users, compared with other European Regions and with USA is very low in Southern Europe. Nordic Countries have 50% of the population using the Internet and the USA 56,5%.

Table 2 shows data referring to some European Regions and USA.

Germany with has nearly 30% of the population using Internet, Czech Republic can be compared to Portugal or Greece, having a population of around 10 Million People and having around 10% of the population using Internet.

North Western Europe occupy an area of 315 100 Square Kilometres, with a population of 63,6 Million People, all are speaking English as main language for communication, independently of other less spoken languages in those countries. There are 21 Million Internet users in North Western Europe, representing 33% of the population.

Nordic Europe occupy an area of 1 154 308 Square Kilometres, with a population of 23,9 Million people, speaking 4 different languages (Nordic Languages are all different but very similar in their route. In average people from different Nordic countries are able to understand each other). According to data available and presented in table 2, there are 12 Million Internet users in Nordic Europe, representing 50% of the population.

Table 2 Country, Official Language, Inhabitants and Internet penetration

Country	Language	Area (sq km) ⁴	Inhabitants (millions) ⁵	Internet hosts (per 100 inh) ⁶	Internet users (per 100 inh)
Portugal	Portuguese	92 391	10.2	1.2	10.0
Spain	Castillian	504 782	39.5	1.4	13.9
France	French	547 030	59.5	1.7	16.9
Italy	Italian	301 230	57.8	2.7	23.3
Greece	Greek	131 940	10.6	1.0	9.5
Germany	Deutsch	357 021	82.2	2.3	29.6
Czech Republic ⁷	Czech	78 866	10.3	1.6	9.7
Ireland	Irish	70 280	3.8	2.3	27.5
United Kingdom	English	244 820	59.8	3.5	33.5
Norway	Norwegian	324 220	4.5	11.2	52.7

¹ Data from CIA World Factbook (<http://www.odci.gov/cia/publications/factbook/>, 6 of July 2002)

² Data from "People in Europe", Eurostat, 2002, referring to January 1st, 2001.

³ Data from "Enterprises and their activities", Eurostat, 2002, referring to 2000.

⁴ Data from CIA World Factbook (<http://www.odci.gov/cia/publications/factbook/>, 6 de Julho de 2002)

⁵ Data from "People in Europe", Eurostat, 2002, referring to January 1st, 2001.

⁶ Data from "Enterprises and their activities", Eurostat, 2002, referring to 2000.

⁷ Data from "The candidate countries", Eurostat, 2002, referring to 2000.

lack of e-business awareness is still a major hurdle to its widespread adoption". So probably attitude has a role to play in order to explain such EU disparities.... Probably the European North-South North-South digital gap should be regarded as a temporary effect due to different growth rates and unequal starting points, so it is expected to be reduced in the near future. At least the general trend shows strong progress in economic and social cohesion in the EU. The First Progress Report on economic and social cohesion, presented on 30 January 2002 by the European Regional Policy Commissioner Michel Barnier, confirms that "the least prosperous countries (Spain, Greece and Portugal) are indeed catching up: the extent to which they originally lagged behind has shrunk by nearly one third in the last 10 years, with per capita GDP rising from 68% to 79% of the Community average". But lastly, although the progress done, the Report shows that "the gaps between countries and regions in Europe in terms of population density, levels of education and access to new technologies are still too wide."

Bellow we describe some Southern European characteristics and cultural factors which can began to give us a picture of the context:

- Southern Europe is an area highly populated with 5 countries and speaking 5 different languages (Portuguese, Spanish, French, Italian and Greek);
- In all Southern European Countries the urban areas are much more populated then rural areas;
- 5 different languages are spoken, besides less spoken languages in those countries
- Due to historical reasons, some of the Southern European Countries, have developed particular and privileged relations with a set of other countries, which share the same language (Portuguese speaking Countries, Spanish speaking Countries, Francophone Countries);
- In Southern Europe Countries, Distance Education in the classical sense (correspondence courses and TV based teaching) was not very much developed mainly due to peoples physical closeness;
- Professionals are used to get training from their local training centres, or travel and get training in other training centres outside their hometown;
- In general training is provided in their own country and using their own country language;
- We can say that it is rare to find a professional applying for training in other countries, not only because of the language difference, but also due to the distance and to the costs involved.
- In the case of large companies or multinational companies, professional are induced to learn other languages, and it is common for them to learn or apply for learning in other countries;

For the propose of providing a better understanding of Southern European specificities we provide a short overview of the e-learning field in the countries involved is this study.

2.1 Portugal

Portuguese Distance Education is a very recent phenomenon. The Portuguese Universidade Aberta⁹ was created in 1988 and is the Portuguese Public University devoted to Distance Education.

⁹ Open University of Portugal

Sweden	Swedish	449 964	8.9	7.0	56.4
Finland	Finish	337 030	5.2	13.6	44.5
Denmark	Danish	43 094	5.3	13	43
USA	English	9 629 091	278.1	29.3	55.8

From this analysis we would like to emphasise the differences between the Northern Europe Internet uses and the Southern Europe ones. In fact we range from a 50% of Internet users in the Nordic Countries to 33% in North-western Europe, 30% in Germany, 10% in Czech Republic and 17,5% in Southern European countries. These figures will reflect on the Countries and Regions level of development in the e-Learning field.

Table 3 represents a summary of the important relations between area, population and Internet users in different European Regions.

Table 3 European Region, Area, Inhabitants and Internet users

Region	Area (sq km)	Inhabitants (millions)	Internet users (% Inhabitants)
Southern Europe	1 577 373	177,6	17,5%
Germany	357 021	82,2	29,6%
Czech Republic	78 866	10,3	9,7%
North Western Europe	315 100	63,6	33%
Nordic Europe	1 154 308	23,9	50%

This evidence about North – South disparities is recognised by the European Commission in the article "The digital divide: disparities between member states", downloaded from the europa web site⁸:

"The eEurope benchmarking report put in evidence the high disparities between Member States in IT progress. The Report shows considerable differences between countries in almost every item analysed. Not amazingly, there is a group of e-advanced countries ranking high in almost all indicators, while the less IT advanced States rank poorly in many aspects. A conclusion of the Report is that "many Member States are too far behind leading EU Member States in Internet penetration and use. More efforts are needed to close the gap."

Differences in Internet and broadband take-up reflect an EU North-South digital divide.....

Other indicators show a similar geographic pattern. There are more than 20 PCs connected to the Internet per 100 pupils in the schools of Denmark and Luxemburg, and more than 10 in Finland and Sweden, while 8 countries rank below 5 PCs per 100 pupils, with Spain, Germany, Italy, Greece and Portugal in the last positions. The more advanced countries show their pre-eminence in several indicators, so not surprisingly Denmark, Sweden and Finland, for instance are the 3 leading countries in the highest percentage of workers having computer training.

Several reasons could be advanced to explain this gap, including cultural aspects. The document "Benchmarking National and Regional E-Business Policies", from the Enterprise Directorate finds that in countries like Spain, Italy and Greece "a

⁸ http://europa.eu.int/comm/education/elearning/wn2002_03/dossier.html, visited on 22/7/02

More recently, with the emergence of new information and communication technologies, other universities, oriented towards face-to-face studies, have developed a set of activities in the online education field, especially using Internet tools.

Three years ago Ana Dias (Cisaer, 2000) described the Portuguese scene in this field: "Online education in Portugal is a very unstructured domain, at both public and private level.

There are no national bodies directly concerned with this issue and the universities that should be responsible for that development are starting their work in the field.

This means that the offer of distance learning courses using the web is not structured neither in the public institutions, universities or training centres. In fact, the Cisaer (1999) Survey shows that in Portugal there is no institution, which offer courses online in a systematic way. In almost all analysed cases, the web courses provided are developed in the context of pilot projects, financed by the European Union and with a limited life span.

INOFOR – the Institute for Innovation in Training is the single national body that expresses its concern with the emerging issues related to distance learning provision via the web. In the last year there was a growing number of institutions involved in e-learning activities. In particular Training Institutions and Universities, which are migrating to e-Learning provisions in a large speed and are organising their Education and Training offer also in an online basis."

Today it is not yet clear how will the training and education markets evolve in this field but institutions are purchasing commercially available systems or develop their own systems and are experiencing their use with different target groups. We can refer to an impressive evolution of the e-Learning market into an organised and structured direction in the last two years.

The most part of the Universities are using Web Ct as platform for distributing their learning, either internally to their face-to-face students either to the Continuous Training market. The penetration of Web CT in the Universities is impressive.

The private companies are selling either Portuguese solutions or solutions adapted to Portuguese language and market. This aggressive policy is leading some bigger companies, to leading positions in terms of penetration of their LMSs in the training market.

2.2 Spain

Three years ago, the Cisaer study reported background information about Distance Learning and the online education field in Spain. In this worldwide study Ana Dias (2000) wrote:

"Distance Education in Spain, was initiated in the seventies. UNED¹⁰, the Spanish Open University, was created in 1972 aiming to improve the cultural progress and to socially develop the country in a perspective of equal opportunities.

Besides UNED, another institution was traditionally responsible for the large development of distance education in Spain: CEPADE (the Post-graduate Centre in enterprise management studies, directly dependent on the Madrid Polytechnic

¹⁰ Universidad Nacional de Education a Distancia

University General Foundation). CEPADE was one of the first e-learning structures in Spain, which was using First Class in a large scale.

In the nineties, a new and very innovative university was born and revolutionised the distance education scene: the Universitat Oberta de Catalunya (UOC). Created by the Regional Government of Catalonia, this university had a new vision, to put information and communication technologies at the service of students and teachers. Having more than 10 000 students all over the world, UOC developed its own LMS system called "Virtual Campus". The participants are able to communicate amongst themselves, with the tutor and with the electronic environment, having access to forums and chats. The students also have access to a Virtual Library and to the bibliographical UOC database.

Online education evolved rapidly in Spain and there are a large amount of face-to-face universities, training centres and private companies adopting this type of learning."

Today Spain has a wide and spread e-learning market. A simple search using a search engine like Google or Yahoo, searching for "e-learning in Spain" can provide us with a wide range of entrances with web sites selling e-learning solutions and institutions using e-learning as a mean for distributing e-courses.

2.3 France

Only two years ago, anyone asking about e-learning in France would have gotten a very confused stare as an answer. Ana Dias (2000) wrote about the French online education field:

"In France there are different structures organising and promoting online education, on the basis of pilot projects, either European or national. The Ministry of Education, Research and Technology¹¹ has set up a National Educational Network that allows individual users to access pedagogical multimedia material available on the web.

At the *educasource* web site (www.educasource.education.fr) and at the *didasource* web site (www.cnpd.fr/didasource/), it is possible to find an information system with pedagogical material and online documents.

The French "country regions"¹² have also developed different strategies to promote online education, and there are other representative boards with web presence. Among others we can refer:

- GEMME (Higher Education Group for Mediated Teaching¹³), which groups higher education institutions and puts documents dedicated to open and distance learning available online;
- the Paris Chamber of Commerce PREAU - a lab dedicated to the new educational technologies;
- THOT the Internet service-news, distance learning to French speaking countries.

In the regional contexts we can also highlight the open and distance learning network created in the Rhône-Alpes area. This regional network regroups AFPA¹⁴ (3 sites), CNAM¹⁵ (4 sites), CNED (2sites), GRETA¹⁶ (9 sites). It is a

¹¹ Ministère de L'Éducation Nationale de La Recherche e de la Technology

¹² Départments

¹³ Groupement pour L'Enseignement Supérieur sur Mesure Mediatisé

¹⁴ Association de Formation Professionel pour les Adultes

network based on the voluntarism of its members, where the service is driven from the local community needs.

CNED, the National Distance Education Centre¹⁷ has recently created its electronic campus¹⁸, offering communication tools to students as well as the possibility to work on exercises and to be in permanent contact with the tutor.

In France, like in the rest of Europe, European pilot projects are responsible for a large part of the market movements.

The online education field is evolving rapidly in France and there is a large amount of face-to-face universities, training centres and private companies adopting this type of learning.”

Today French Universities and Training Organisations are using e-learning strategies. French Companies and corporations are offering online training to employees.

Some Universities are gather in the Interuniversity Federation for Distance Learning (FIED), other Universities have signed an agreement with CNED, and others have signed an agreement with the CNAM. Furthermore there are Universities' Continuing Education Departments or other Higher Education Institutions, which have formed alliances either amongst themselves or with private-sector partners to create digital campuses.

French Ministries of Education and Research promoted two key initiatives in the ODL field, the Form@sup (<http://www.formasup.education.fr/index.php>), an information server for Higher Education ODL programmes and the call for projects to create French Digital Campus (<http://www.educnet.education.fr/superieur/campus.htm>).

It also has numerous teaching resources, which can be accessed directly online, as well as links to other resource sites such as ÉducaSup (<http://www.educasup.education.fr/>) and Éducasource (<http://www.educasource.education.fr/>).

A call for projects to create Digital Campuses was launched in 2000. These projects are intended to provide a selection of post-secondary ODL courses, which use new information technologies for clearly identified fields and target groups. This call for projects led to the selection of 49 projects in 2000. Another 66 were chosen in 2001

(<http://www.educnet.education.fr/superieur/campus2001.htm>). There was a call also already in 2002

(<http://www.educnet.education.fr/superieur/campus2002.htm>). We tried to open the Web sites of the Digital Campuses financed under the 2000 call for proposals, but unfortunately most part of the web sites were unreachable.

Another interesting initiative is the Database maintained by the Observatoire des Ressources Multimédia en Éducation ORME, the body that monitors the use of multimedia resources in education (<http://www.orme-multimedia.org/>).

In the private sector there are an estimated 100 e-learning companies in France. Although most French e-learning companies were created only last year, some are actually traditional employee-training companies that have made the jump to the Net.

¹⁵ Conservatoire Nationale des Arts et des Métier

¹⁶ Greta are Continous Training Centres from the Ministère de l'Éducation Nationale

¹⁷ Centre Nationale de Éducation à Distance

¹⁸ Campus Electronique

2.4 Italy

Only three years ago Ana Dias (2000) wrote a description of the online education domain in Italy.

"In 1990, the Ministry for the University and for Scientific Research and Development¹⁹ promoted the creation of the NETTUNO network, for the implementation of Distance University courses. A consortium of universities, enterprises and other institutions composed this network. Politecnico de Milano, Politecnico di Torino, Università di Roma, RAI, Trainet (a Telecom Itália Training company) all have largely contributed to the development of online education in Italy.

Furthermore, several other institutions are enriching the online education field in Italy, schools are networking and providing online facilities like the "house of knowledge"²⁰, a collaborative and distributed learning environment designed for teachers and students.

In a regional context there are also important experiences. The Emilia Romagna Region has put forward a plan designed by SINFORM²¹ for the setting up of a "Resources Centre for Multimedia Education & Open Distance Learning". Today, the Resources Centre for the ODL is a reference point at regional level for experimentation and dissemination of training schemes based on the methodology of the ODL and is aimed at the utilisation of multimedia material.

Besides national programmes and projects, European projects have largely contributed to the development of online education in Italy; face-to-face universities, companies, training centres are moving as fast as the information and communication technology demands."

Today things have evolved and the e-learning market is alive.

The conference "*e-Learning: state of the art and future development*" organised by ANEE²² last April 2002, with the participation of the Ministry for Innovation and Technology (Ministero per l'Innovazione e le Tecnologie - MIT), concluded the following:

- Three out of four enterprises are planning to invest in e-learning solutions for training
- E-learning can not be planned within organisations without complete reorganisation of knowledge management
- The E-learning market is increasing 140% per year
- Enterprises, Public Administration and Schools are the sectors in which e-Learning will have a strong impact
- The Italian Government is heavily investing in e-learning initiatives for the Public Administration both at central and peripheral level.
- Important Italian Universities like the Politecnico di Milan or Bocconi are creating alliances with private Industry to develop common actions. These common actions go beyond a relationship customer-service provider since planning is done by both partner involved.

¹⁹ Ministero dell'Università e della Ricerca Scientifica e Tecnologica

²⁰ Albergo della Conoscenza

²¹ Sinergie per la Formazione

²² Association of Electronic of Multimedia Services and Content, www

2.5 Greece

Ana Dias (2000) wrote: "Greece, like the other Southern European countries, participates in different European pilot projects, but besides that, there is a low participation rate of Universities, Technical Education Institutes, Training Centres and Enterprises in the online education field.

Located in Greece, the European Centre for the Development of Vocational Training (CEDEFOP) has been involved, since 1976, in the promotion and development of vocational training for young people, and the continuing training of adults, primarily through European-wide co-ordination of analysis and research activities.

Today, this Centre represents the principal knowledge base on this subject, having published hundreds of reports and sponsored research in all Community member states.

Within CEDEFOP, the European Electronic Training Village is a site dedicated to bringing experts in the field of Vocational Training together to share the latest information available. The electronic training village is an electronic resource centre (the users can download and read free publications, search lists on web sites by topic to find just the site you need, access bibliographical databases, the European Research Directory, the Terminological Database and the Institutional Database). In the words of CEDEFOP's Director, Mr. Johan Van Rens, "The Electronic Training Village facilitates the flow of information amongst and between policy makers, researchers and practitioners in vocational education and training throughout Europe and beyond. Its aim is to stimulate communication, interaction and debate on the development of vocational training policy, practice and research."

Today the Greek School Network (http://www.sch.gr/index_en.php), put the country's schoolchildren and educators in touch with each other and with resources all over the world. The schools are riding on the digital rails of the Greek Research and Technology Network (GRNET) (http://www.grnet.gr/index_en.html), created under the auspices of the Ministry of Development's General Secretariat for Research and Technology (<http://www.gsrt.gr/html/eng/index.html>) to interconnect Greece's academic and research community.

Some good practices examples are being carried out among Universities and Scientific organisations, for instance at the Athens Medical School, a group of students take notes as they follow an operation being carried out at the Areteion hospital some kilometres away. The procedure is being broadcast live on an audiovisual screen in the central library of the National Technical University of Athens (NTUA) (http://www.ntua.gr/en_index.htm), where a computer-savvy generation is reaping the multiple benefits of e-learning.

The NTUA in collaboration with Athens University (www.uoa.gr/home.htm) and the Athens School of Economics and Business (<http://www.aueb.gr/gb/main.html>), has brought higher learning into the 21st century with the establishment of tele-teaching theatres at all three institutions. Professor Basil Maglaris, head of the e-learning programme at NTUA, noted that e-learning was especially useful for the medical field as practitioners are able to learn the latest techniques by actually viewing an operation online as well as offer tele-diagnosis services. Tele-diagnosis (<http://tie.telemed.org/biblio/>) is a crucial development for Greece considering the large number of communities living on remote Islands and in isolated mountainous areas. Furthermore, e-learning is allowing students to come into contact with students and academics at institutions within Greece and around the world.

Main problem for the institutions is the lack of the financial support, which means that development of the site and its contents is an individual effort and consequently slow.

We found that most of the websites of the institutions, universities, and firms were in Greek; this was a barrier to our investigation. In general we can say that there is just a small number of institutions applying real LMS systems, and also from these reason there was just a small response on our project.

From the small number of interested institutions there were some so busy that it was simply impossible for them to carry the interview even at the phone.

3. Institutions and LMS experiences

In the analysis presented in this chapter several types of institutions are analysed, from Private Companies, to Enterprise Associations, Training Centres and Universities. The Institutions are presented by alphabetic order, within the countries Portugal, Spain, France, Italy and Greece.

The institutions interviewed were ranging from companies to non-profit organizations and Universities.

Table 4. Institutions sorted by Country

Name of Institution	URL of Institution	Country	Type of Institution
Academia Global	www.academiaglobal.com	Portugal	Private Company
Associação Empresarial Portuguesa	www.aeportugal.pt	Portugal	Private Non-Profit Association
Associação Portuguesa de Segurança Social	www.seg-social.pt/profiss	Portugal	Private Non-Profit Association
Digito/Evolui	www.evoluti.com	Portugal	Private Company
Instituto de Soldadura e Qualidade	www.institutovirtual.pt	Portugal	Non-Profit Private Institution
Pt Inovação	www.ptinovacao.pt	Portugal	Private Company
Universidade Católica Portuguesa	www.esb.ucp.pt	Portugal	Private University
Universidade de Aveiro	www.ua.pt and www.unave.ua.pt	Portugal	Public University
Universidad de Vigo	www.uvigo.es	Spain	University
Anonymous	www.esperienze.net	Italy	Anonymous
Ifoa	www.ifoait	Italy	Non Profit organisation
Profingest	www.profingest.it	Italy	Non Profit - Consortium
Sinform	www.odl.net/default.asp	Italy	Non Profit - Training Organisation
Università Cattolica del Sacro Cuore	www3.unicatt.it/unicattolica	Italy	University
University of Trento	www.didatticaonline.unitn.it	Italy	University
CNED - Centre Nationale de Education a Distance	www.cned.fr	France	Education/ Public Institution
Université de Bourgogne	www.u-bourgogne.fr	France	University
Université La Sorbonne Nouvelle Paris III	www.tele3.net	France	University
Université Paul Valéry - Montpellier III	www.univ-montp3.fr	France	University
The Aristotle University of Thessaloniki	www.csd.auth.gr/information/department.en.php	Greece	University

From table 4 we can observe a total of 3 private companies, 6 non –profit institutions (training organisations), 8 public universities, 1 private university, 1 public institution in the education field and 1 anonymous institution.

Do to its characteristics we have grouped all the public and private universities, together with the public education institution in a University group.

Table 5 Type of organisation and frequency

Type of organisation	Frequency
University	10
Private Companies	3
Non-Profit Institutions (training)	6
Anonymous	1

Table 6 bellow shows in detail the information about the surveyed institutions sorted by LMS used. Interviews include 11 self developed LMSs and 10 commercially available LMSs. From the commercially available LMSs in use, 4 Institutions use Web – CT (3 are Universities), 2 other Institutions use Blackboard, 2 other use Learning Space and one institution uses Docent and another institution uses Intralearn.

Table 6 shows that 8 of the 21 interviewees institutions know or had experiences with other LMS besides the one in use currently.

There are a total of 561 online courses that are using the 16 LMS systems. Important is to note that 4 institutions have from 1 to 3 courses, 7 institutions have from 4 to 15 courses and only 10 have from 16 to 85 courses. These mean that 50% of the researched institutions have less then 15 courses online.

There are a total of 470 online tutors and a total of 41296 only students. Please note that teachers and students number is counted according to the number of years the system is in use (from one year to seven years) and according to the duration of the courses (duration varies from 25 minutes courses, to 30 - 60 hours courses, and 2-7 months, one semester, 2 years or 4 years courses). Another observation is that some institutions were not able to identify exactly how many only students (and some times teachers) they have.

In summary, in the 21 institutions studied there are 16 LMSs in use (11 are self developed and 5 are commercially available systems), 561 online courses, 470 online tutors and 41.296 online students.

Table 6. Information about Surveyed Institutions Sorted by LMS

Name of Institution	LMS	Other LMS	# Online Courses	# Online Tutors	# Online Students	# Years in Use	Typical Course Duration
Associação Empresarial Portuguesa	aep e-cursos	-	30	12	500	4	30 hours
Profingest	Blackboard 5	-	12	26	300	2	2 years MBA 4 months (7 units courses)
Università la Cattolica del Sacro Cuore	Blackboard	Decus System		-	-	2	
Sinform	Docent	Greenteam	3	11	160	2	1 year
University of Vigo	Elias	Simulnet	18	38	55	2	1 year
Anonymous	Esperienze	Web-ct Docent Intralearn	1	6	150	1	4 months
Digito/Evolui	EvoluiTech	-	80	45	12500	5	1 month
PT Inovação	Formare	-	10	8	1121	6	13 days
Sinform	Greenteam	Docent	7	6	140	8	2-7 months
Aristotles University of Thessaloniki	In house developed	-	1	-	180	1,5	6 months
CNED	In house developed	-	-	-	-	7	Vary
Academia Global	Intralearn&Centra	Docent Saba	70	15	1500	1	25 minutes
IFOA	L'aula virtual	-	85	50	2200	6	2 years MBA 40 hours - other courses
Instituto de Soldadura e Qualidade	Learning Space	aep e-cursos Saba	15	12	750	2	1-2 months
Université de Bourgogne	Learning Space	-	6	3	60	1	1 year
University of Trento	Proprietary	-	50	10	15000	1	1 semester
Universidade Católica Portuguesa	TWT - teaching Web Toolkit	-	14	10	120	4	40-60 hours
Associação Portuguesa de Segurança Social	Web-Ct	-	49	6	360	3	22-75 hours
Universidade de Aveiro	Web-Ct	Aulanet	80 University 17 Unave	80 university 11 Unave	4500 University 500 Unave	5	1-2 months 40- 50hours and 80- 100 hours

Name of Institution	LMS	Other LMS	# Online Courses	# Online Tutors	# Online Students	# Years in Use	Typical Course Duration
Université la Sorbonne Nouvelle Paris III	Web-Ct	-	3	100	1200	1	4 years
Université Paul Valéry Montpellier III	Web-Ct	-	10	20	10% of the University Students	2	-

4. Course Development Tools

Course creation is generally observed as a main facility to the LMS. However, the answers to this part of the interview show different tendencies: i) LMS are accessible environments to course creation; ii) LMS are mainly a form of support and sharing of information; iii) LMS show difficulties which leads to the use of different or external tools and the involvement of production experts. A particular situation is observed in a self-developed system that is based in a flexible strategy that promotes the integration of new tools according the needs and the course design.

LMS are accessible environments to course creation:

"It is a simple and accessible environment. The content can be downloaded on the platform by the trainers, using any tool. Following a patterned structure from the guide, the trainer can create a course, session to session and propose it to AEP"

To some interviewees LMS are mainly a form of support and sharing of information:

"WebCT is a form of support, sharing information and communication.

It is not seen as a system for the development of the course." (Universidade de Aveiro: Web-CT)

Some institutions need to use external tools to the LMS and specialist support to course production, also suggesting that difficulties are based not in the platform but in the process of implementation:

"INTRALEARN tool is somewhat debilitated and should be complemented with other tools and/or applications that generate content onto the web." (Academia Global: IntraLearn)

Some self-developed systems are based in a flexible approach to course design.

"We could say that CNED has one basic system that allows new tools / elements to be added according to current needs, it is flexible, but problems always occur there. The creation of the courses is actually a joint work of CNED that provides know how, methodology, its expertise in distance education as such, in the work with various tools and on the other hand there is a institution e.g. university that import the content of the course. Usually when there is a course to be created the CNED examines if the tool of the institution could be useful or if the CNED should search for something new in order to provide according to best possibilities." (CNED: Self-developed)

On the whole the different platforms in use allow the didactic processes flexibility being rather, for some institutions, a main concern in the organization and development of the courses in the domain of the accessibility and interaction of the contents. One of them refers in particular to the adaptation of the forum to

the flexibility of the learning processes. For other institutions the integration in the various media is the means of didactic flexibility.

"The system used doesn't impose or privilege any pedagogical approach. It's a flexible system that allows different approaches. The focus is the possibility of designing activities with the students supported by the LMS."

The role of the forum to the development of didactic flexibility:

"The use of Web-Ct introduced a set of conditioning elements that had to be managed internally.

For example, it was concluded that the chat didn't bring anything of value to the pedagogical relationship with the students.

The forum, on the other hand, became a set of reflective and advantageous discussions. Therefore, the material produced in the Forum became the pedagogical material and synthesis of material and themes.

In this phase of creating material the software showed some inflexibility because it was necessary to have HTML in order to download the content/material for the e-learning platform. Regarding didactic flexibility the software corresponded to the needs."

The importance of multimedia and audio and videoconference services:

All formats are admissible as long as they're, let's say, video, audio, normal text, normal images, charts. The system has a description system in XML. The user has limits regarding sufficient bandwidth, but the system itself doesn't have any limitations. (Prodígio: EvoluiTech)

In the teacher user-friendliness domain the answers point out different conceptions and strategies followed by the institutions. A former group refers that the platforms are clearly user-friendly and also suggests that the design of the system will allow its intuitive usage, eventually with the help of helping systems, which promote the autonomy of the user. The second group establishes the necessity of trainers' training to use LMS, and the third introduces the distinction between the roles of content expert and tutor, as a strategy to overcome the constraints of the familiarization with LMS.

"Very easy, the trainers that work with us have no specialty in computers; they're traditional trainers, who have easily constructed the content without any problem."

"Our teachers who are also the tutors had no problems in using the LMS. For the most part they have found Blackboard to be very easy to use. In their opinion they can do more than before with our previous product. Valuable content development remains time consuming independently from what LMS you use."

The need of previous and/or continuing training:

"It's not perfect, a 4 on a scale from 1 to 5 ... there is no formal training for the teachers... the best practices is shared amongst the teachers, some workshops... Normally, a full day session, addressed to people with no experience as a user. The first part is an explanation of what has been done and a demonstration is given, and the second part is practical where the people use the tool.

Afterwards, direct help is given to the teacher whenever he/she requires it...

A team of students called techno-rangers was created, which works on a 'call' basis."

Some institutions introduce the distinction between the roles of the content expert (teacher) and the tutor, the later as the one that manage the course development and implementation:

"We distinguish content expert and tutor. There is no "Teacher" in a traditional sense. Content expert participate in course development following a top-down approach. They supervise content and reply to answers posed in the forum but all their input is mediated via the tutor. It is the tutor who uses the LMS directly not the content expert.

The use of different media is a facility present in the generality of the platforms, in spite of its use not being usual, especially at the video level, having in mind the limitations of the pre-existing bands.

It supports the integration of multimedia elements. Metadata for multimedia elements.

Some institutions do not use audio or video but are planning to introduce them:

"At the moment the LMS does not support audio, video or moving images but IFOA is analysing some existing products to be eventually integrated into the existing system."

Some institutions do not use audio and video:

"The system used is good for text mode, acceptable for images; it doesn't support video or audio. Even though such resources are available for downloading, the system is not oriented to support audio or video in a broader sense."

Other institutions are cautious about the use of multimedia:

"Yes it does, but at this moment we are not using audio and video in training, due to technical deficiencies in the students' and country's computers. The students don't have computers with these characteristics, but the platform has it."

"No – we prefer not to load-up heavy content in order to facilitate those students who only have minimum software and hardware."

Questioning and assessment are facilities of the LMS used by the institutions of this study. However, these facilities have different ways to support student learning through the feedback offered to the user by the system/ tutor. One case of enriching feedback deserves a particular reference as it includes the development of a database of student's interventions and comments presented as practical course applications. Another institution made the conceptual distinction between informal and formal assessment. The first one is included in the LMS and the later to the process of traditional in house final course examination.

"It's possible to create self-assessment questionnaires, as well as generate precedents. It is also possible to create work groups, generate questionnaires for final assessments without the student receiving any immediate feedback, given that it's possible to create open questions."

"The system includes a module for the creation and exploration of questionnaires with multiple answers.

In a broader assessment context, it supports an approach by project, problem solving, exploration of virtual laboratories (field of chemistry, physics), not up for discussion, publication of work."

Some LMS use external tools to provide questioning and assessment facilities:

"We use automatic test batteries for formative and summative assessment. This software is not a *Greenteam* product but was integrated later. The product used is *Academy*.

Other institution use a final course examination:

"We have to distinguish between two types of assessment we use: informal assessment and formal assessment. The first is built in the course structure

through case studies to be developed by the students. The second one is never on-line but is done through traditional exams to be taken in house.”

Another institution uses not only the tutor feedback but plan to introduce previous interventions and comments of students as a practical course application:

”The trainer has various question formats: multiple answer questions, correspondence questions, open-answer questions. Everything the user/student sends is corrected automatically, facing the correct answers stored in the server, and the system attributes a grade to the student right away. Everything that is an open-answer goes to the server area and the trainer checks every day the answers he/she must correct in order to give a grade. All open questions that require a jury or if that need to be evaluated by a trainer are sent by the trainer via web. That grade is then put together to the one given at the time in order to calculate the final grade. Another thing we are doing now is re-finding content from the students... We save the interventions given by the students in each course, but we had never done anything with this before... We are now doing something..., as a way to enrich the courses, we are using the students’ interventions, descriptions made by them, exchange of comments, things of the sort... and we present it as practical course applications...”

5. Student support tools

The facilities of interaction available by LMS are shown, generally, by the fora, chat mailing lists and email, having to bear in mind that not all the interviewed institutions use the so called services. Some have adopted a pedagogical model which discourages the use of the services of chat communication. Others include videoconference and collaborative technologies based on video streaming. In one case, the strategy of development of the interaction still includes the promotion of the system control by the learner with the possibility of the learners being able to edit pages or even to create fora.

Interactivity possibilities based in fora, chat and email services:

The type of student support resource existent for communication is the forum, the chat room, the identification of a virtual class (that allows the sending and exchange of e-mails) and a document area (that allows the placement of documents for the virtual room). During training the students can share work documents or other documents that have to do with training, and it’s possible to not only send work or practical cases to the trainer but also to the virtual class, thus sharing work documents.

Others also includes videoconference and video streaming technology:

Various possibilities as chat, videoconferences, WebCT supports discussions.

We integrated collaborative technologies (video streaming) using both live and traditional video lessons. The first connects the director and the orchestra. Email (all-tutor). Forum (all –tutor).

Some institutions follow a pedagogical model that discourages the use of the synchronous communications:

In *fora*. The institution doesn’t encourage the use of synchronous communication. Chats are not used frequently, synchronous tools are not promoted... the platform allows it, but they are not used often.

One institution following an asynchronous strategy also encourage student control over the system:

The students may have control over the system at various levels. They can be managers/creators of part of the course, and can create pages, fora, etc... but the basic idea is to participate in mailing lists, participate in fora, post content, publish pages...

At the student to student communication level two tendencies stand out: i) the simultaneous usage of the communication synchronic and asynchronous services; ii) the preferential usage of the usage of asynchronous communication. Two cases are still referred of not using the communication services student to student. Both services of synchronous and asynchronous communication based in fora and chat:

In synchronous terms it supports chat. There is no audio or video conference. In asynchronous and formal terms, it supports fora. It should be noted that the management of fora, as well as other page models can be given to students.

Some institutions develop the pedagogical model based in asynchronous communications

It is mainly asynchronous communication although there are cases with the synchronise communication but it is quite rare. The CNED does use e-mails, chat, videoconferences, phone calls. It depends always on the student possibilities.

Others are based in synchronous communication services:

The ELIAS platform is synchronous, forum and e-mail is available.

In the communication learner tutor two modes stand out globally, synchronic and asynchronous, respectively chat and forum, discussion lists and email. However, email is the modality more frequently stressed to enter in contact with the institution being still referred, in one case the discussion list for the contact with the institution. Theses services are available 24 hours a day. The availability for the communication learner tutor or institution includes the use of the telephone especially during the period of the activities.

Online student to tutor/institution synchronous and asynchronous communications:

Student and trainer communication is established in a synchronous and asynchronous way through four instruments (forum, chat, document zone, virtual room, questioning area). Regarding the institution e-mail is the only communication system in the platform.

Or asynchronous communication, i.e. email, to student tutor/institution communication:

email student – tutor. Tutors are available during the office hours. The presence of an additional technical tutor is guaranteed during videoconference lessons. For this purpose students have to join the class in a place which was equipped with all ITC tools required for effective video streaming.

Other institutions use mailing lists to student institution communication

The LMS privileges student to tutor communication. Institution communication has access to mailing lists by course, but the more administrative fluxes don't go through the system. The more administrative fluxes are implemented in a more traditional way.

Some institutions use 24h telephone line as a communication resource

Relatively to 24h access to the service, this is a reality, a permanent support telephone line functions beyond the normal working hours.

Student facilities concerning library resources and online references are presented as follow:

Access to online documents, references or a resource centre:

At this moment there is no library on-line, the students have access to a set of documents that are made available in the work area of the course.

Or an online library:

There's a Library space on the Platform. This library is general to all courses on the platform. By course, there is also an organisation of reference and resources.

Links to online references:

...the course has bibliographical references online and within each module there's reference to books or publications that aren't online.

Some institutions also offer a course book.

Documentation services are well organised, and have various services available on-line.

Regarding UNAVE the basic work material is a commercial book.

Other comments:

..they are limited. But, we see it, not as a limitation of the system but of the resources. If the library had a digital service, this interlink would be natural and evident... we believe those services should be supplied by the libraries so they can be integrated by the LMS.

From the answers given by the interviewed institutions we may consider two types of feedback: one is automatic and build up in the system and other is made by the tutor. The first type of feedback is immediate, since the student finish is work. However, there are few systems with this type of feedback facilities. The most usual form of feedback is given by tutors and varies from 24h to the maximum of 7 days (in a specific case of a doctorate course).

Automatic feedback:

Automatic feedback is provided by the system in reply to self-testing, and feedback coming from the tutor is provided when the tracking system shows that the student does not make any progress.

Time feedback that varies according the type of the course and the student tutor communication system used:

It depends on each tutor/trainer... it is up to them... but that weakness exists at a presence level... there is no system that guarantees quality that can contribute to the fulfilment of the goals: time for response, level of use, quality of interactions, quality of activity design, etc...

When we speak of e-learning [Note Pedro Pimenta: e-learning is understood as learning only supported by electronic means], these systems will be necessary...

Or from 1 to 7 days:

For a doctorate programme the time for response is acceptable. The teachers' responses take from 1 to 7 days. The system does not advise the student. (Universidade de Vigo: Elias)

6. Tutor Support tools

There is evidence from the data collected that not all LMS have facilities to monitor student's performance, or when founded it is not enough for tutors' task. The answers show that tracking facilities mostly address quantitative register of presence in the training area of the LMS, forum or chat. Also student administrative and background data is not directly accessible to tutors who need to made specific query to the system administrator in order to get it.

Some interviewees identify facilities of student tracking with or the support of the system administrator.

All trainers have access to their group of students, they have access to the identification of the students' presence in the training area of the platform; they have access to what goes on in the chat room. The students' tracking has to be solicited by the professor to the management of the training centre.

To others tracking procedures are made by tutors:

Tutors can track students via the LMS. Monitoring is mostly done through computer based assessment linked to specific databases. Personal data, test results and other forms of assessment get stored and are retrievable at any time.

In some cases is used an external database associated with the LMS.

Web-ct allows it, but the identification of the students is, in our case, done through a separate database. In the online tutoring mode monitoring is done by the tutors and by the course coordination. Tracking of students is done by the institution, which informs the tutors.

Other LMS do not give tutor access to student data:

The platform doesn't have any monitoring tool. The teacher can analyse the answers to the evaluation questionnaires. The students' data is stored in a database but the platform doesn't support its manipulation.

Others comments:

This is not done through the LMS. This is the job of the institutes to monitor the situation, manage the contacts between all stakeholders, to be prepared to answer on any requests. They are responsible for registration that means they have the whole overview of the students' portfolio, they usually receive the assignments from the students in order to see if they are fulfilling the required criteria for further studies.

We get a few direct answers to the question related to group management tools (how the LMS deals with the tutors facilities to manage group of students), especially to the group creation facilities. From the data collected management is made in the course of forum: However, there is a case of self-developed LMS where is identified an agent to guide group activities.

With group creation and management facilities:

The basic element is the group. Each course has a group. The teacher can add or remove students, send information, etc. .

Without group creation or management facilities:

There are no automatic facilities to make up groups of students.

Group management facilities identified with fora, chat and email:

Place tasks and communicate through e-mail with each work group. It can also launch specific *fora*.

An agent to guide group activities.

Teacher does not guide the groups but there is an " Angel " that helps the students by any problem. It works like the Angel appears and answers on the questions, always present and available; it is an internal part of the system.

Mostly LMS have a questionnaire generator and it is used by tutors. However, some answers indicate that they are not user friendly or accessible to tutors. To others situations questionnaires are prepared externally and displayed in fora.

Questionnaire generator integrated in the LMS:

There is the automatic generator of questionnaires in the platform. Regarding the availability of work and practical cases insertion is done by session. To insert

session content there is a specific field in order to compose practical work on the case study.

Some interviewees identify user friendly problems

That is in the system but it's not exactly given to the trainers because we think that they would not use it or would need a lot of preparation to use it...

Questionnaires prepared externally and displayed in fora

Questions can not be prepared automatically via some LMS specific publisher but are developed separately by the teacher. These test can be then downloaded by the student. The transfer of these files is done by the tutors via the tools provided by the platform.

The collected data evidence a general lack of integrated tools to monitor and plan student progress. Exception was presented by two institutions whose LMS have dedicated tools to register and edit the student path.

Otherwise, this function is accomplished through the questionnaires, assignments or, in one case, the working diary. Another pedagogical approach suggested by institutions to monitor students' progress is based in the register of presence in fora.

LMS with integrated tools to register student progress:

It contains a set of progress reports. There's the possibility to create various types of reports. The student's whole path is registered.

The tutor can edit progress by student or by course.

LMS without specific integrated tools:

The trainer doesn't have access to automatic tools; he/she must ask management. The trainer receives the work directly from the students, but it has nothing to do with the platform.

Through questionnaires and assignments:

The evolution of the student can be monitored, regarding his/her progress in the foreseen training plan, at any time.

Or fora activities:

The tutors monitor through the answers given by the student in the fora. Through messages read and answered by the student. The register of pages accessed by the students.

Data evidence the lack of specific tools to provide administrative communication between tutor and institution. Generally, administrative communication was done independently of the platform through external tools. Only one institution identifies these facilities in the LMS that they use, however without comments to the user-friendly level of this tool. The answers evidence a current tendency to the absence of these tools in the LMS and the need to develop it in the next future.

Some institutions identify tutor institution communication facilities in the LMS, although not used intensively:

The LMS allows teacher/institution communication. For coordination a helpdesk is used, and normal electronic mail.

Others do not have tutor institution communication facilities integrated in the LMS

There is no specific part of the platform that makes tutors communicates with the: administration. Any communication of this kind is done "out-side" the platform.

7. Administration Aspects

This section refers to general administration; students enrolment, fees payment, user and password management, student and examination records, and general teacher/student/course allocation.

Enrolment procedures and fee paying are made in quite different ways. The site / LMS of the institutions usually provide some information on the available courses, fees, etc... In this way, some preliminary contacts ("Pre-enrolment") might be facilitated by the LMS. In general, formal enrolment and fee paying is done outside the LMS. In some training companies or state services, enrolment might be made using the LMS, but payment is processed off-line (secretary, check, etc...). Only one of the institutions has declared to have the full process supported by the LMS.

There are contradictory expectancies; although, in some way (... *still, lacking, not yet, it is planned...*), some users mentioned the fact the payment should be / will be supported by the LMS, one other clearly stressed that the LMS should focus on teaching/learning activities, considering that administrative functions are out of the scope of the LMSs.

Concerning Passwords and security, in general, access to course content is granted based on login / password. Some LMS support both public and private areas. No one related any security problem. One person mentioned that the security strength is related to the operating system used. Some systems use a 'user' approach, and the username/password are provided to the 'student' / 'tutor'; one other mentioned that the password is associated to the course.

Although all the LMS claim to have, in some extent, a students database, the use is quite different; in some cases the database is not available or the institution "is not ready to use" it. Other situations includes tracking of the students behavior and/or quiz (closed-type questions) performance inside the system. One system has different databases for students and for tutors and teaching staff.

Some answers pointed out that users are, in same way, disappointed with the database extraction services.

"Examination", "evaluation", "formal assessment" are understood as formal processes, and the face to face model is followed. On-line students might be submitted to "formative" and/or "summative" assessments, for 'monitoring learning' purposes, and the issue of "participation certificates", based on students' activity inside the LMS is a generalized procedure.

Courses, teachers, classes is a 'design' subject. Some LMS have been designed to have some tutor/classes managerial facilities, some others don't. In the first case the LMS provides some 'scheduling' facilities, in the others the 'working perspective' is the course unit.

It seems a general trend that this facilities seem much more important for professional training institutions where (in general) courses are shorter, are "repeated", in several "editions", in short timelines, than in classical education institutions (universities), where the model adopted (longer, once a year) favors a more stable course / teacher / students association.

8. Technology Aspects

From the point of view of hw/sw, encountered systems seems to reflect the overall market situation; the majority of systems use Microsoft software (Windows 2000, NT), but some systems use Unix / Linux as the operating system. For traditional teaching institutions adopting LMS, the integration with other information systems is not a present concern; for institutions basing all their activity on the LMS the integration is already obtained or is considered prioritaire.

One interesting point is the fact that two interviews didn't knew what kind of hw/sw their LMS were using. This might be understood a positive tendency in terms of the opacity of technology; people are using technology without necessarily be aware of what kind of alternatives are being used, which might be a sign of the maturity of the technology.

A main concern of the eLearning providers seems to be the easy of use for the final user. All the answers mentioned the idea of 'minimum requirements' for Client hw/sw, using expressions as "*the client only needs...*", or "*standard equipment...*", "*basic programs*", "*minimum user requirements*", etc...

Concerning the hardware, some interviewees mentioned CD player and printers (beyond the 'standard'); in what concerns the software it is possible to separate it) the access to and navigation into the LMS and ii) the access to course contents; for i) 'standard' browsers are usually mentioned; for ii) several interviewees mentioned the necessity of having some plug-ins, being Acrobat explicitly mentioned.

One particular answer mentioned some other type of requisites; no hardware neither software, the need of an email account has been mentioned as a 'client' requisite.

The question of the flexibility of didactic structure got a very broad range of answers; some interviewees mentioned the fact of using or complying with standards (IMS, SCORM), others (probably because 'Flexibility' is seen as a positive thing, by itself), argued that '*the system is new*', or, in a very laconic way, "*It is adaptable*". Many interviewees argued that technological design and development had taken in consideration the importance of pedagogical freedom ("*pedagogical ... adaptation*", "*pedagogical strategy*").

In relation to Standards, interviewees stressed the absence of both 'de facto' and 'proposed', technical standards. Curiously, (only) one interviewee mentioned his/her belief that standardization will have a positive impact in internationalization of eLearning businesses; and, on the other hand, other person stated the complementary idea "*Since our courses are country specific, standards are not yet relevant*". The existence of standards is welcome, both for marketing reasons (as indicated before), but also for cost reduction ('rationalization of resources') or LMS migration.

The number of students is not considered an issue; many interviewees stressed the fact that their experience is relatively recent, or the number of students quite small; others mentioned systems is scalable. Only one person mentioned the fact of having one server for course contents management and delivery and another

for users' management. Another person mentioned the use of two servers, but for security reasons.

Some phrasing indicates that interviewees are aware that number of students might be a problem in the future; "*we are just at the beginning(...) no problems yet*", "*no problem until now*", "*just a small number of students ... yet*", "*up to now...*", and, in some way, in are foreseeing the question.

In general, access to the LMS is through Internet, and the speed of the system depends on the limits of bandwidth available for each user. Users are accepting this situation as satisfactory, except two interviewees; one uses video contents on their courses, and the other has a large experience in corporations with their own network.

9. Economic Issues

Interviewees have been conducted in a broad range of institutions; from Universities to professional training companies, and the answers on these questions reflect this diversity. Given the fast evolution of these products, and the correspondent fast obsolescence, providers prefer a cost structure based on annual fees than based on 'price'. Commercial and/or well-established LMS have substantial costs, and again here two main cost structures are present; one-year license ranging from \$5000²³ to 40000/60000 €, independent of the number of users, or licenses based on the number of users, with a cost of 30 € for each student. The institutions which have developed or are developing their own LMS don't mention the 'cost', or express the developing / maintenance costs in terms of people allocated (1 technician full time). One University is using an open source product with buying cost zero.

Student fees issue relates directly to the course undertaken, not the platform used. Companies working in the area of short time, vocational training, mentioned student fees in the range 175 €-200 €. One University, which uses an LMS for doctoral programs, mentioned an initial fee of 1250€ plus 800 € per year. In the cases where the LMS has a cost per user, the institutions include it on the course price of - mainly Universities - offer the LMS as complementary service to teachers and students, without any fee directly linked to the LMS use.

Many interviewees mentioned that it is hard to identify the staff support and costs. However, those who gave objective values, converged for a team of around 2-3 people full-time (technicians plus help desk), plus a variable size support team depending on the number of users who need help.

Teachers / tutors usually require some initial training in using LMS. In some cases teachers are well acquainted with technology, and formal training does not take place, in other cases, formal actions are planned, and some interviewees mentioned blended learning practices, as one day face-to-face plus 15 days at distance. Some interviewees stressed the fact that the people needing support in learning how to work with LMS are teachers, since the LMS interface for students follows the web standards, and, thus, students don't need help in using the LMS. In the case of blended learning, the first, face-to-face session, is used by

²³ around 5000 €, July 2002

the teachers / tutors to show to the students the functionalities of the LMS, and this is considered enough for the rest of the course activities.

10. Overall evaluation

Interviews analysis led us to find that in general the e-Learning managers are satisfied with the solutions they bought or developed.

All Web-Ct users declared they were satisfied with Web-CT. One has pointed out difficulties with the English language and another considered the interface very poor.

Blackboard users are satisfied and hope the Italian version will come out to the market very soon.

Learning Space is considered good, stable and intuitive. Interviewees pointed out that the assessment aspect is not very well constructed.

Some of Docent users would appreciate that the handbooks was not in English, but translated. Furthermore the graphical impact was considered of Docent is not very attractive.

Intralearn users considered it a program of good quality and flexible. They stated that the system was better than Learning Space or *Formare*, but worse than Docent or SABA.

Concerning the self developed systems the majority of the interviewees are satisfied with own systems. Most part of the interviewees were able to point out some major difficulties and some improvements they would like to introduce in their own developed systems.

Some own developed platforms are very successful and are selling e-Learning solutions to other Institutions.

"...it is a national system, developed according to the practice and experience of e-learning, maybe that can be considered the secret to its user-friendliness and success in the increase of the number of clients in 2001 and 2002 (currently there are 17 institutions using the system in Portugal)."

Other own developed systems are satisfied with their LMS features, but they are not able to put Multimedia on the web due to the general technological network. In relation to trainers it was stated that trainers can put all kinds of contents in the system, but possibly the LMS could integrate some other trainers facilities, especially related to students monitoring.

One University that developed its own system declared that there are other factors that limit the use of LMS:

"There is no institutional strategy, it is a bottom-up initiative, but it would be useful if it were top-down... the initiative is facilitated and accepted, but there is no strategic dimension..."

Another University supports previous declarations:

"The experience is good and surpasses the expectations. The most important is lacking... The institution dedicates very little to virtual education. The only thing that the University acknowledges is the dedication of the teacher, counting it as a school year activity and thus valid for curricular reasons."

In summary we can say that Commercially available platforms can be very practical to start with but they have problems with linguistic issues, as well as with assessment tools adequacy to target groups.

Own developed systems are simpler and directly related to the target groups; they surpass the linguistic problems of the commercially available platforms and are constantly updated, being able to improve their features according to trainers, trainees and administration evolution. Besides the linguistic advantage national

marketing strategies together with competitive pricing contribute to the great use of those own developed LMSs.

Another important issue is the Universities e-Learning managers concern with the University policy and strategies for this field. Apparently Southern European Universities are not dedicating enough importance and attention to this subject.

11. Future Features to include in LMSs

Content management and content development tools are major concern for all interviewees.

"Enrich content: multimedia, and knowledge management. Content flexibility."

"It's necessary to improve the content management databases. There is software that only manages content that can be incorporated."

A general concern for the e-Learning managers is related with the management of competencies, including the integration between training management and human resources management. Interviewees declared also their concern with the administration and monitoring of students, courses and contents, as well as with the use of better assessment tools.

"Integrated management of all management/organisation mechanisms of the course, mainly in a dematerialised environment of a course, in the perspective of the system administrator, so as to allow a global reading of the course. Integrated management system capable of monitoring."

"Students data bases, further group management tools to better divide users, better articulated statistics (one per class, alphabetic order); the possibility to work directly on course development without the need of using dream river."

Other institutions have great concerns with the Teachers training.

Didactic flexibility and online retrieval of library resources are also concerns pointed out by interviewees.

".. without losing the current perspective of flexibility, it would be interesting to have pre-defined models of structured pedagogy... a case of methods, a problem-based learning, or other type of approach that has already been structured, etc..."

"Integration with other systems; Support of different media...Standardization for the reuse of contents/activities... more in the perspective of activities..."

Many institutions did not answer to this question, especially institutions from France, none of them have answered.

In summary, content management, didactic flexibility issues, including collaboration and group management and students management are the main concerns expressed on the interviews.

12. Conclusions

From the present research it is clear that the increasing number of Internet users in Southern Europe is pushing up the e-Learning market. There are more institutions, which have web presence and e-learning offer.

Besides the eLearning initiative of the European Commission seeks to mobilise the educational and cultural communities, as well as the economic and social players in Europe, in order to speed up changes in the education and training systems for Europe's move to a knowledge-based society.

Viviane Reding, Commissioner for Education and Culture stated

"The Member States of the European Union have decided to work together to harmonise their policies in the field of educational technology and share their experience. eLearning aims to support and coordinate their efforts and to accelerate the adaptation of education and training systems in Europe."

It is our conclusion from the present studies that Southern European institutions are on the write track to further develop the existing e-Learning offers.

Since the year 1998 we have observed the e-learning field evolution. Ana Dias (2000) wrote in the Cisaer final report:

" Online education in Portugal is a very unstructured domain, at both public and private level. In almost all analysed cases, the web courses provided are developed in the context of pilot projects, financed by the European Union and with a limited life span."

"Online education evolved rapidly in Spain and there are a large amount of face-to-face universities, training centres and private companies adopting this type of learning."

" In France, like in the rest of Europe, European pilot projects are responsible for a large part of the market movements."

"Besides national programmes and projects, European projects have largely contributed to the development of online education in Italy; "

"Greece, like the other Southern European countries, participates in different European pilot projects, but besides that, there is a low participation rate of Universities, Technical Education Institutes, Training Centres and Enterprises in the online education field. "

The present study shows evidences of an evolution of the institutions involved in e-Learning in Southern Europe.

The pilot projects are no longer dominating the e-Learning field in Southern Europe.

At present there is a tendency to organise and structure the e-Learning offer using a type of software somewhere classified has Learning Management System. Those systems are dedicated to some issues of the learning process, but in almost all the cases (commercially available systems or self developed) the systems are not able to perform all the activities the institutions need. Administration aspects, integration with existing software and content management are some of the issues not well treated by most part of the LMS studied.

Language is a main issue in Southern Europe and LMSs not translated to Countries languages can be easily unsuccessful.

Another interesting observation is the lake of a common understanding concerning terms and functionalities of the LMS systems.

The research also led us to observe that most part of the e-Learning managers assume a position of experimentation and initiation on the e-Learning process (50% of the researched institutions have less than 15 courses online).

Course creation is generally observed as a main facility to the LMS. However, the answers to this part of the interview show different tendencies: i) LMS are accessible environments to course creation; ii) LMS are mainly a form of support and sharing of information; iii) LMS show difficulties which leads to the use of different or external tools and the involvement of production experts.

To some interviewees LMS are mainly a form of support and sharing of information:

Some institutions need to use external tools to the LMS and specialist support to course production, also suggesting that difficulties are based not in the platform but in the process of implementation.

The student support tools available on the LMS are shown, generally, by the fora, chat mailing lists and email, having to bear in mind that not all the interviewed institutions use the so called services. Some have adopted a pedagogical model which discourages the use of the services of chat communication. Others include videoconference and collaborative technologies based on video streaming.

There is evidence from the data collected that not all LMS have facilities to monitor student's performance, or when founded it is not enough for tutors' task. Also student administrative and background data is not directly accessible to tutors who need to make specific queries to the system administrator in order to get it. Some interviewees identify facilities of student tracking with the support of the system administrator.

These observations lead us to conclude that in most part of the cases Teachers are note the ones who monitor the students.

It seems a general trend that the Administration facilities seem much more important for professional training institutions where (in general) courses are shorter, are "repeated", in several "editions", in short timelines, than in classical education institutions (universities), where the model adopted (longer, once a year) favors a more stable course / teacher / students association.

Concerning the technological aspects, in general, the access to the LMS is through Internet, and the speed of the system depends on the limits of bandwidth available for each user. Users are accepting this situation as satisfactory, except two interviewees; one uses video contents on their courses, and the other has a large experience in corporations with their own network.

Many interviewees mentioned that Economic aspects are hard to identify. However, those who gave objective values, converged for a staff team of around 2~3 people full-time (technicians plus help desk), plus a variable size support team depending on the number of users who need help. Teachers / tutors are also an additional cost, they usually require some initial training in using the LMS.

An overall evaluation allow us to observe that the commercially available platforms can be very practical to start with but they have problems with linguistic issues, as well as with assessment tools adequacy to target groups and pricing.

Own developed systems are simpler and directly related to the target groups; they surpass the linguistic problems of the commercially available platforms and are constantly updated, being able to improve their features according to trainers, trainees and administration evolution. Besides the linguistic advantage national marketing strategies together with competitive pricing contribute to the great use of those own developed LMSs.

Another important issue is the Universities e-Learning managers concern with the University policy and strategies for this field. Apparently Southern European Universities are not dedicating enough importance and attention to this subject.

Most part of the systems researched seems to have problems with content creation and content management, students monitoring and assessment tools. Online administration and integration with other institution software and platforms were also a question.

References

<http://europa.eu.int/> - The European Union On-line

<http://www.odci.gov/cia/publications/factbook/> - CIA World Factbook