Undergraduate distance education in LIS in Spain 1999-2014: a historical perspective

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Introduction

During the last decade of the 21st century and most of the first decade of the 21st century, there has been a huge growth of Library and Information professional practitioners in Spain. This expansion had two main drivers, in a general context of political stability and economic welfare: first, the consolidation and growth of public services and infrastructures, such as public and university libraries; second, the disruptive introduction of digital information systems and services in organizations, as well as in sectors such as health or tourism. This expansion was particularly relevant in Catalonia. Catalonia holds a longstanding library tradition. Moreover, it is an important business region, which has been shifting from classical industry to services and industries based on the intensive use of information. Until 1999, many of these professionals had no a university degree specific in the Library and Information Science (LIS) area (but rather an academic background in fields such as Art and Humanities, Information Technology, Management or Health), or had just technical university majors or diplomas in Librarianship[1]. They meant a great critical mass of prospective LIS students, that is, older

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1 In the University system of Spain previous to the transition to the Europen Higher Education Area (EHEA), there was three different degrees:

Diplomatura: a three-year technical degree, as the one related to LibrarianShip.

prospective students willing to balance work, life and education. Consequently, there was a need of a university degree including general management and strategic management topics related to LIS.

In this context, the Universitat Oberta de Catalunya (UOC) was created in 1994, with its headquarters in Barcelona, as an initiative of the Catalan Government. It was set up from the very beginning as a fully Internet-based distance e-learning university, with a very specific model to deliver distance education (Duart and Sandrà 2000; Cobarsí 2008). Keeping into account such organizational features, the UOC was called to be a key actor in LIS distance education. With this goal in mind, a new undergraduate degree in LIS (Llicenciatura en Documentació) was set up in 1999. This fact meant a turning point in the whole LIS Spanish higher education landscape, due to four main reasons:

1) The UOC was the first university to offer the new degree *Llicenciatura de Segon Cicle en Documentació* in distance education mode (which included management topics to enforce LIS education), when this undergraduate title was still new in the whole Spanish higher education system. The e-learning model allowed people inside the labor market to attend higher education courses to increase their knowledge and professional expertise.

2) In a quantitative way, because of the huge number of students (who then became Alumni) which attended this kind of teaching from the very beginning. This way, the UOC became in this period the main actor in the whole LIS university education Spanish system (De la Moneda, 2014), with its nearly 1700 Alumni being the largest community in this undergraduate title. It can be said that the UOC was a main contributor to fulfill the needs in the Spanish context, helping to overcome a lack of LIS education for a huge mass of professional nontraditional students.

Llicenciatura: a five-year degree, considering it as the undergraduate degree. In the EHEA, it is the sort of degree that remains but being a four-year degree.

Llicenciatura de Segon Cicle: a two-year degree, that allowed students with a *Diplomatura* to get a full *Llicenciatura*. So, students coming from a *Diplomatura* in Librarianship were able to get an Undergraduate degree. Nevertheless, students with a *Llicenciatura* in other disciplines (like History, for instance) were able as well to get the this *Llicenciatura de Segon Cicle* doing some complementary subjects.

3) Concerning instructional methodology, because of the introduction of a very specific model of distance education, fully based on an e-learning environment via Internet. It was an asynchronous model, intensive in the use of e-mail and forum communication and the individual and collaborative use of digital content and learning resources, in a virtual campus environment. In this context, a close student guidance and supervision by instructors took a central role. In such a learning environment, planning and instructional design acquired a key importance.

4) Regarding contents and skills, because of the introduction of new specific subjects in LIS education in Spain at that time, such as: competitive intelligence, digital libraries, human computer interaction, information audit, knowledge management, etc. In fact, this brought to the introduction for the first time in Spanish universities of a programme inspired by iSchool ideas such as those pointed by Seadle and Greifeneder (2007).

Several years after the UOC started with its distance education activity in 1999, other universities with face to face tradition began their own distance education initiatives: León (2006-2007), Carlos III de Madrid (2007-2008), Barcelona (2011-2012), Extremadura (2011-2012). None of them has acquired by now in their distance campus the quantitative dimensions of the UOC. As for their distance learning models, they have some resemblances and also some differences from the UOC model. Among the differences, they use some kinds of face-to-face classroom interaction, so they could be considered as hybrid models falling somewhere in between distance and face to face education. Anyway they mean an increase and a diversification of LIS higher education models in Spain.

In the 1999-2014 period, another major shift in Spain universities was the implementation of European Higher Education Area (EHEA). In the LIS field, as well as in others, it brought changes in the structure and methodology of undergraduate education. Then, a new undergraduate title, *Grau d'Informació i Documentació*[2], was set up and each university took different strategic decisions about the degree's new design (López-Borrull et al 2011). So, intelligence competitive techniques were used in some degrees to enhance programme's design (Ortoll et al 2008; García-Alsina et al 2011; Garcia-Alsina et al 2013). But there was not just competition, but also collaboration between universities. In this sense, a key reference for the new 4 year degree, which was started in Spanish universities in the period 2008-2010, was the so-called *Libro Blanco de Información y Documentación* (*'White Paper'*)

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2 The title Grau in the Spanish transition to the EHEA refers to a degree of 240 credits ECTS

(ANECA 2004). This White Paper was written in 2004 in a collaborative way by the network of Spanish universities in the LIS area, with Universitat de Barcelona as coordinator, and settled up general guidelines for the 4 year undergraduate title. This sort of cooperation was usual at that moment, so most degrees in Spanish higher education system had as reference a 'White Paper' for each knowledge area. Previous experience of the UOC introducing new contents and skills was a relevant source in order to establish these guidelines.

Distance learning models

In 1999, at the beginning of our historical period, two distance education models were in place in the Spanish higher education system:

1) Universidad Nacional de Educación a Distancia (UNED) had begun his academic activities in the early 70s, at the same time of UK's Open University beginnings. In 1999 its model was based on the delivery of documents and learning materials to students by traditional mail, including also the option of synchronous face-to-face consulting with an instructor every two weeks or so in the UNED dependences (there were dozens of UNED dependences all over Spain). They had at that time a long experience with degrees such as Law. But they were not (and they are not at present time) an academic actor regarding LIS.

2) UOC's academic activity in LIS area begun in 1999, with the start of Documentation undergraduate title (*Llicenciatura en Documentació*). The Universitat Oberta de Catalunya (UOC) had begun his academic activities in 1994, and it was based in the following key points: asynchronous communication (between instructors and students, and between students as peers), ongoing interaction and feedback enhanced by the intensive use of an intranet environment including advanced e-mail and forum capabilities (virtual campus), student empowerment and engagement through ongoing educational activities, intensive use of digital educational resources and content, traceability of educational activity and processes through virtual campus logs and mail communication.

In this sense, UOC-like models involve some key organizational features:

- Technology is thoroughly embedded into organization, and administrative and educational processes are highly coupled, so that there is a need to make processes more explicit and specific (Cornford 2000).

- New needs for instructional design, specially concerning activities design, planning and student orientation and feedback (Neidorf 2006). In this sense, a close guidance of the student in such environments is very important, with an ongoing communication and feedback with instructors, and information focused to enhance students self-organitzation and a suitable interaction with peers and instructors.

- An increasing importance of students' sense of community and networking capabilities, as important facets in this sort of education environment (Canals et al 2007).

- E-learning environment enhances traceability of processes and behaviors, and so facilitate quality management practices and tracking of students' activity (Sangrà 2002).

In this sense, the UOC was created from the very beginning with some specific organizational features enhancing this kind of e-learning model (Cobarsí 2008): flexibility, startup culture, instructional design unit focused on e-learning and its own technological environment also focused on e-learning (called 'virtual campus'). On the opposite side, most current universities still show a structure tied down to a mix of agriculture-era and industrial-era organizations (Bates 2000), so they need to struggle to foster organizational changes in order to adapt to this new university organizational environment (Bates and Sangrà 2011).

Other LIS universities begun their own distance initiatives a few years later: León (2006-2007), Carlos III de Madrid (2007-2008), Barcelona (2011-2012), Extremadura (2011-2012). In fact they used hybrid models, somewhere between distance and face to face education, and they called themselves as hybrid models. In this sort of environment, periodical face to face sessions were used on a volunteer basis oriented to: lessons, supervision and guidance on activities and so on. In some cases these sessions were recorded and published in an e-learning digital environment. Such initiatives in this period are to be viewed in the context of a general trend in Spanish higher education system (not just in the LIS area), with non-distance universities trying to get attention from non traditional students (Argudo et al 2012; Martín and Rodríguez 2012; Pacio and Bueno 2013).

Building the LIS trajectory and a new Degree in the Spanish university System

Different authors have previously reported the evolution of LIS in Spain (Abadal and Miralpeix 1999; Abadal 2013). As Abadal (2013) states, "it is a curious fact that in full Information and Digital Content, everyone agrees on

the relevance that it has acquired information but at the same time, this importance is not related to the discipline, LIS, and with professionals dealing with its organization and dissemination". This fact, so, could be considered a paradox related to the extension of the importance of being able to manage properly information to all disciplines.

At the beginning of this period, in 1998, there was a short tradition of LIS university education in Spain: the main precedent of the current faculties and schools is the one in Barcelona. The Librarians´ School was created in 1915 by the Mancomunitat of Catalonia (a sort of Commonwealth of district public administrations in Catalonia region) for training librarians. Currently, as a faculty being part of the Universitat de Barcelona, is the oldest library school in Europe. Being part of the University System, the three-year degree, the *Diplomatura*, began to be teached in 1983. But there was need for more deep knowledge and teaching, including skills related to management. Thus, the *Llicenciatura de 2on Cicle en Documentació* had to fill this gap.

The experience of 15 years of e-learning in LIS in the UOC has showed two main ideas. Firstly, that LIS, even having a strong dependence on Information and Communication Technologies, can be learnt in a distance model. It is not a trivial conclusion, as there are many disciplines, mainly in Pure and Applied Sciences, that e-learning models have not been successful enough in creating an environment for them. Secondly, it meant the step from a technical point of view, from a technical knowledge to a scientific orientation. So, LIS became really established as a Science as having a full degree and being able to develop some PhD programs.

In fact, considering the EHEA, the UOC e-learning methodology and approach of the curricula for the Degree in LIS that was offered just before beginning the transition to the EHEA was very closed to the requirements of the EHEA. Thus, the model of the UOC places the student at the centre of the learning process, giving to him a set of elements as a kind of accompaniment, either the teacher or the teaching plan. In addition to a curriculum designed from the point of view of desirable skills, both belonging to the discipline or being cross-curriculum. It showed, then that for instance had a shorter way in its adaptation to the EHEA (Sanz and López 2008). This fact meant that the UOC was able to consider a growth not related to methodology but to the skills and contents that LIS could have in common with other disciplines.

As it has been previously stated, the EHEA became the opportunity to design a new four-year degree considering a full curriculum. In the White Paper written in 2004 (ANECA), a list of skills and four professional profiles were agreed by the universities involved in LIS degrees. These profiles, Library, Special Library, Archive and Content Manager meant the traditional LIS profile. Some Universities, using the percentage of optional subjects that they could choose, designed new subjects more related to the new kind of professional that society and the labor market was beginning to describe. For instance, in the

UOC five different group of optional subjects were created considering five profiles: Library and Documentation, Information Management: Information Analyst, Information Management: Record Management, Information Management: Information Architecture, Information Systems Management. All these new profiles with their respective subjects were, in fact, the strategy designed by the UOC and other universities to expand the discipline till the overlapping with other disciplines like /Communication and Computer Science.

The LIS distance education in the LIS undergraduate university programmes: a quantitative approach

In this section we'll bring a quantitative overview about LIS university education in Spain in this period. Table 1 shows the total number of students in this period, that is the total of all academic years (1999-2013), all universities (18 institutions), and all titles (*diplomatura + llicenciatura + grau*). These numbers include distance students as well as non-distance students. The top five universities in this period are: Universitat Oberta de Catalunya, Universidad Complutense de Madrid, Universitat de Barcelona, Universidad de Granada, Universidad Carlos III de Madrid. So, the UOC is the Spanish top university in this period, which is more remarkable when we keep into account is the only one between top five teaching just two from three titles (*llicenciatura* and *grau*). UOC concentrates most of distance students in this period, we'll see further on with some detail.

Table 1 Total number of students by university in 1998-2013 period (*diplomatura + llicenciatura + grau*, distance + non distance). Source: De la Moneda (2014) and Servicio de Información Interuniversitaria.

	Total	%
Universitat Oberta de Catalunya	13.851	17,12
Universidad Complutense de Madrid	10.520	13,00
Universidad de Barcelona	9.834	12,15
Universidad de Granada	8.634	10,67
Universidad Carlos III de Madrid	7.310	9,03
Universidad de Murcia	5.389	6,66
Universidad de Salamanca	4.755	5,87
Universitat de València	4.354	5,38
Universidad de Extremadura	3.703	4,57
Universidad de Zaragoza	2.380	2,94
Other (8 universities)	10.173	12,61

In Table 2 we show the total number of alumni in period 1999-2013, for all universities and titles, in a similar way as in Table 1 regarding the number of students. Concerning alumni, the top five universities in this period are: Universidad Complutense de Madrid, Universidad de Granada, Universidad Carlos III de Madrid, Universitat de Barcelona, Universitat Oberta de Catalunya. It must be taken into account that the UOC, as a new university in LIS in 1999, had begun his academic activity in 1999. On the other hand, non-traditional students attending distance education tend to be part-time students, while non-distance students tend to be full time ones. So, overall time to obtain their degree is usually longer for distance students. In broad terms, a non-distance student may need one year to complete and academic year, while a distance student may need one and a half year to complete and academic year. In this sense, as we'll see in more detail later, UOCs significant contribution to the number of alumni in this period is not as noticeable from the very beginning, because of being a new university in the area and with students with a greater need of more time to complete their degree.

Table 2 Total number of alumni by university in 1998-2013 period (*diplomatura + llicenciatura + grau*, distance + not distance). Source: De la Moneda (2014) and Servicio de Información Interuniversitaria.

	Total	%
Universidad Complutense de Madrid	2.358	15,51
Universidad de Granada	2.157	14,19
Universidad Carlos III de Madrid	1.969	12,95
Universitat de Barcelona	1.868	12,29
Universitat Oberta de Catalunya	1.629	10,72
Universidad de Salamanca	1.149	7,56
Universidad de Murcia	963	6,33
Universidad de Extremadura	932	6,13
Universitat de València	692	4,55
Universidade da Corunha	468	3,07
Other (8 universities)	1.010	6,64

In Figure 1 we summarize the total distribution of students between learning models. All Spanish LIS universities are kept into account as well as all titles (*diplomatura + llicenciatura + grau*). Three models are in place in this period: e-learning based virtual distance (that is, Universitat Oberta de Catalunya), face to face models (with 17 universities in place), and hybrid distance models mainly based in virtual distance initiatives with some face to face communication included. These hybrid models start in different years during

the analyzed period: León (2006-2007), Carlos III de Madrid (2007-2008), Barcelona (2011-2012), Extremadura (2011-2012). These universities also maintain their face-to-face campus, so they belong also to the set of 17 face-to-face universities in place.

The proportion of LIS students which study through virtual distance model (UOC) raises consistently from the 10% at the beginning of the period to 20% or more (since 2007-2008) with a slow trend to decrease in the two last years of the period. On the opposite side, face-to-face decreases consistently from almost 90% ant the beginning of the period to a bit more than 70% at the end. Hybrid distance/face-to-face models begin with less than 1% with one university at 2006-2007, up to 7% with 4 universities at the end of the period.

Fig 1 Evolution and distribution of students for the different learning models. Source: De la Moneda (2014) and Servicio de Información Interuniversitaria

In Figure 2 we summarize the total distribution of alumni between different learning models. All Spanish LIS universities are kept into account as well as all titles (*diplomatura + llicenciatura + grau*). Three models are in place in this period: e-learning based virtual distance (that is, Universitat Oberta de Catalunya), face to face (with 17 universities in place), and hybrid distance models mainly based in virtual distance initiatives with some face to face included. These hybrid models start in different year in this period: León (2006-2007), Carlos III de Madrid (2007-2008), Barcelona (2011-2012), Extremadura (2011-2012). These universities also maintain their face to face campus, so they belong also to the set of 17 face to face universities in place.

The proportion of LIS students which study by virtual distance model (UOC) raises consistently from the zero at the beginning of the period to more than 18% in 20005-2006, then decreases sharply to 14% or so in period 2007-2011, and ends with a sharp increase in the last 2 years of the period. This late increase maybe due to students trying to obtain the *Llicenciatura*, as soon as possible before teaching is over. Numbers concerning face to face are almost exactly the opposite, because of small significance of hybrid models in these period.

Fig 2 Evolution and distribution of alumni for the different learning models. Source: De la Moneda (2014) and Servicio de Información Interuniversitaria

Now, let's summarize in Figure 3 the number of students in *llicenciatura* title (the first undergraduate degree in Spain with distance learning) of the 3 models in place in this period: virtual distance, hybrid distance and face-to-face (Figure 3). In broad terms UOC's virtual distance model holds more than 35% across the analyzed period, with a sharp increase during the 2 last years up to 58% and 71%. So, the UOC distance model holds a very strong position in *llicenciatura* teaching in Spain. Numbers of the 2 last years of the period

are exceptional because of the UOC being one of the Spanish universities already closing *llicenciatura* teaching when *grau* EHEA title were in place. This choice was coherent with the UOC mission to teach non-traditional students with a part-time study profile. Anyway, face-to-face teaching during this period has been, in broad terms close to a 65%, but in the last years. Hybrid distance models have little significance.

Fig 3 Evolution and distribution of students for the different learning models in the *Llicenciatura* degree. Source: De la Moneda (2014) and Servicio de Información Interuniversitaria

In Figure 4 the number of Alumni for llicenciatura is summarized, it shows a continous increasing in the number of students which obtained their degree with models different from face to face, which reaches near 40% at the end of the period.

Figure 4 Evolution and distribution of alumni for the different learning models in the *Llicenciatura* degree. Source: De la Moneda (2014) and Servicio de Información Interuniversitaria.

Finally, in Table 3, we summarize the proportion of new students (fresh) for the new EHEA title (*grau Informació i Documentació*). So, the data available for these first years of EHEA (2008-2013), combined with data available for all undergraduate titles in the whole period 1999-2013, seem to point that near 30% of students is a maximum difficult to surpass for virtual and hybrid models in Spain.

Table 3. New students EHEA undergraduate degree *grau* (2008-2013). Source: De la Moneda (2014) and Servicio de Información Interuniversitaria

	Total new students	%
Virtual distance (UOC)	606	19,52
Hybrid distance	351	10,15
Face to face	2.498	70,33

Conclusions

From a quantitative point of view, the introduction of distance models in LIS university education has attracted a high proportion of students in the period 1999-2014 in Spain. In broad terms, from the total of students attending the three university degrees in place (*diplomatura, llicenciatura, grau*), almost

20% from them attended distance courses. The proportion grows up to 35% if we focus on *llicenciatura* degree (*diplomatura* had no distance initiatives for most of the analyzed period and *grau* begun as a degree in the last years of this period). Concerning to alumni numbers, near 12% came from distance initiatives, a figure that grows up to 20% when we focus just on the *llicenciatura* degree. The impact of distance initiatives in terms of number of alumni is more moderate than in terms of number of students: a key reason for that is the greater amount of time needed by non-traditional distance students in order to achieve their academic degrees. Another important reason is the proportion of students giving up distance courses, higher than in conventional courses. As far as we know, first years of EHEA *grau* title, point to a stability in broad terms in the proportion of face to face versus distance students if we look at the numbers of the whole period 1999-2013.

The main distance LIS distance initiative in this period is UOCs e-learning based distance model. Most distance students attended UOC in this period, actual configuring an important proportion of total students. UOC experience was not just of introducing distance education in LIS programmes: it was also a methodological approach to later introduction of EHEA standards and the first time iSchool movement ideas were introduced in LIS undergraduate teaching in Spain (UOC entered iSchool network later on, in 2013). EHEA undergraduate new title *grau*, started in Spain in 2007-2008, having as a key reference a White Paper from 2004, which was a collaborative initiative of Spanish LIS universities coordinated by Universitat de Barcelona. Other distance initiatives started during the second half of this period by universities with face to face tradition (León, Carlos III de Madrid, Barcelona, Extremadura), with less quantitative impact. From a qualitative point of view, these initiatives are set up as hybrid models, with a mix of distance and face to face, and show a trend to become fully distance initiatives.

Digitalization of educational environment for distance initiatives matches with trends of digitalization of the LIS environment, as well as general labor and lifestyle trends. Keeping into account the experience in this period in Spain, specially UOCs e-learning degrees, and current trends, there are some insights coming out about the future of LIS distance education initiatives, that might be also useful for distance education in other disciplines. Furthermore, it allow us to think about the role of LIS discipline contribution to develop future e-learning initiatives in close collaboration with other social science and technology disciplines:

1. The challenge for distance learning environments is to assure not just proper information and guidance for students organization, but also a high engagement for them. In this sense, experience in place in the UOC, such as virtual classrooms structured on students activity instead of course content may be kept into account, as well as new

formats of educational resources with focus on narrative or serious game strategies.

2.   The convenience to facilitate and optimize students networking in these new environments, being peer collaboration and mutual help a powerful resource for students success, at least as critical than in face to face environments. In the context of LIS professionals, where many of them work into interdisciplinary teams or networked environments, distance education experience may be specially useful for them.

3.   The track of students' activity in e-learning environments generates huge amounts of data. Thus, opportunities are open to put in context and contextualize these data in order to get a better understanding of behavior patterns, preferences, interests and social practices in place.

4.   The need to get an adequate balance between standardization and codification of knowledge and processes (necessary to build the software applications that support an e-learning environment), the specific context of each discipline and subject and the need for continuous knowledge discussion and actualization.

5.   The evaluation of the new negree and its indicators of quality will be the next step for distance learning models to contribute the need for balancing the dilemma between degrees with high presence of general information management oriented skills versus library focused.

6.   Finally, last but not least, we could point to a fundamental challenge in current distance education. The need to shift from the use of technology to achieve an "automatization" of educational processes to try to achieve an "augmentation" and strengthen educational capabilities based on innovative thinking about educational resources and environments.

All in all, Spanish undergraduate distance education LIS experience encourages innovative thinking about future of LIS higher education, and may be a source for long ahead prospective thinking such as report by Marchionini & Moran (2012).

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