Syllabus flexibility and Adaptation to the new European Higher Education Area through the Inclusion of e-Learning

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Summary: This paper examines the process of introducing virtual learning methodology into the University of Andorra (Universitat d'Andorra) and the way in which this process will bring greater flexibility and help in bringing syllabuses more into line with the European Higher Education Area (EHEA).

University education in Andorra began in academic year 1988 -1989 with computer and nursing studies, with the aim of meeting the needs of Andorran professionals in these areas. From the very start a high degree of flexibility was built into the syllabuses by means of tie-ups with universities abroad in order to enable student mobility, as well as to widen the range of specialties. Another factor in syllabus flexibility from the beginning has been collaboration with the local business sector to offer advanced vocational training designed both for professionals in the sector, and for specialisation in the course of the students' curriculum.

During academic year 1997-1998 virtual training began being offered in the University of Andorra through collaboration with universities abroad. This change brought greater flexibility in the existing syllabuses, both in the offer of specialties and in learning methods.

During academic year 2004-2005, following the guidelines laid down in the University of Andorra Strategic Model, 2003-2007, the own virtual learning environment was launched, which enabled the development of training programmes with content specific to Andorra aimed at an extremely wide public. Likewise, the virtual learning environment has become a useful support tool for the classroom training programmes that provide supervision and personal monitoring of the students.

The central purpose of the study is to analyse the different structures, learning methodologies and institutional collaboration that make up the University of Andorra educational model. It also sets out to examine how closely it is in line with the EHEA.

Keywords: e-learning, European Higher Education Area, virtual learning environment, flexibility, mobility

1. Introduction

The Principality of Andorra is a European country measuring 468.7 Km^2 located at the eastern end of the Pyrenean Mountain range. In 2007 it had a population of 83,137 inhabitants (Ministeri 2007).

The public funded University of Andorra, founded in 1997, is the only university in the country, with a small and flexible structure that enables it to adapt to the changes demanded by the society that it serves. In academic year 2007-2008 it boasted 900 students. The permanent staff of the University consists of 34 people, of whom 20 are teaching staff. The rest of the faculty, approximately 200 people, comes from universities abroad or are professionals of Andorra.

The University of Andorra offers classroom-based government-regulated training programmes in four areas: business, education, computing and healthcare, as well as an extensive range of government-regulated training programmes following an e-learning or blended learning methodology, in collaboration with other universities abroad. The availability of continuous training is constantly changing and adapting to the real world and to the needs of the country's professionals.

During academic year 1988-1989 higher education programs were introduced in Andorra for training in the fields of nursing and computing, with the aim of responding to the needs of the country's professionals.

From the outset the university training syllabuses have had built-in flexibility by means of collaboration with universities abroad and with the local professional sector, with the aim of extending the range of specialties, as well as providing mobility to the students.

During academic year 1997-1998, a collaboration agreement was set up with the Open University of Catalunya (*Universitat Oberta de Catalunya)* and with the Ramon Llull University *(Universitat Ramon Llull)* which allowed a wide range of first- and second-cycle university training courses to be introduced in Andorra following an e-learning or blended learning methodology, using the virtual learning environments of the collaborating universities. Not only does this collaboration bring about a broader range of university programmes for the University of Andorra, but, from academic year 2003-2004, it has also increased the range of specialties on offer through new optional subjects, for the existing classroom-based programmes.

This article is divided into nine sections. The second section contains a brief description of the objectives of the European Higher Education Area, in which Andorra has taken part since the beginning. The third section contains an analysis of the structure of the various syllabuses of the classroom-based government-regulated courses given by the *University of Andorra*, with special emphasis on the degree of flexibility incorporated. In the fourth section we classify the different flexibility models that are built into the University of Andorra syllabuses depending on the degree of mobility that they give to students, and we analyse the popularity of the various options amongst students. In the fifth section we focus on the flexibility in syllabuses provided by the introduction of virtual learning methods and their impact at organisational level. In the sixth section we introduce the concept of the *metasyllabus*, as a universal space for content from various universities provided using virtual learning methods. In the seventh section an analysis is made of the difficulties that the *University of Andorra* must face due to the different ways of adapting to the EHEA by the neighbouring countries with which our institution has traditionally mainly collaborated. In the eighth section we highlight the conclusions of the work undertaken, and finally in the ninth and last section we examine the future work that would serve as a follow-up to this article.

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2. The European Higher Education Area (EHEA)

In the strategic model of the University of Andorra, a university with a small structure is advocated, one that is dynamic, flexible and creative, both in regard to courses and to their organisation, and adapted to the social and economic realities of the country, both now and in the future. It is also set out that as part of this social reality, the University of Andorra must conform with the EHEA.

This process began with the Sorbonne Declaration (1998) and was consolidated and extended with the Bologna Declaration (1999), in which European education ministers urged the Member States of the European Union to develop and implement the following undertakings in their countries:

1- Adoption of a system of easily readable and comparable degrees, also through the implementation of the Diploma Supplement, in order to promote European citizens employability and the international competitiveness of the European higher education system.
2- Adoption of a system essentially based on two main cycles, undergraduate and graduate. Access to the second cycle shall require successful completion of first cycle studies, lasting a minimum of three years. The degree awarded after the first cycle (bachelor degree) shall also be relevant

to the European labour market as an appropriate level of qualification. The second cycle should lead to the master and/or doctorate degree as in many European countries.

3- Establishment of a system of credits - such as in the ECTS system - as a proper means of promoting the most widespread student mobility. Credits could also be acquired in non-higher education contexts, including lifelong learning, provided they are recognised by the receiving universities concerned.

4- Promotion of mobility by overcoming obstacles to the effective exercise of free movement with particular attention to:
   a. for students, access to study and training opportunities and to related services
   b. for teachers, researchers and administrative staff, recognition and valorisation of periods spent in a European context researching, teaching and training, without prejudicing their statutory rights.

5- Promotion of European co-operation in quality assurance with a view to developing comparable criteria and methodologies.

6- Promotion of the necessary European dimensions in higher education, particularly with regards to curricular development, inter-institutional co-operation, mobility schemes and integrated programmes of study, training and research.

These undertakings are embodied and widen in the communiqués of the subsequent meetings of European ministers in Prague (Ministers 2001), Berlin (Ministers 2003), Bergen (Ministers 2005) and London (Ministers 2007).

3. The structure of the syllabuses

During academic year 1993-1994 the *University of Andorra*'s first-cycle studies in management computing began. The first syllabuses included a percentage of optional free-choice subjects, but the actual offer of free-choice classroom courses was minimal because of the small number of students, so students were guaranteed the possibility of completing their studies but without giving them the chance to choose the specialisation that this type of subject should have allowed. This shortcoming induced the first search for collaborating institutions that would enable the expansion of the range of specialties, and thus during academic year 1996-1997, a new training programme began aimed not only at the students of the University of Andorra but also at Andorran professionals interested in extending their specific knowledge on a subject. This programme is called CPP (*Curs de Perfeccionament Professional*, Advanced Professional Course) and each year is offered under the sponsorship of various private institutions in Andorra interested in training their professionals in specific fields of computing.

75.95% of students of management computing have followed this training program since it was first offered.

In this way a first flexibility factor was built into the University of Andorra syllabuses, through a type of professional-oriented training that has brought the students of the University of Andorra closer to the professional environment, giving them an introduction to what in the future would be their continuous training (livelong learning). This opportunity has been made possible thanks to mixed funding: the enrolment of professionals interested in following the programme and sponsorship by a private institution. This flexibility affects 2.50% of credits for the whole syllabus.

Another way of bringing greater flexibility to the syllabuses is through the collaboration with universities abroad. The academic year 2002-2003 first provided the possibility of studying for a semester at the Polytechnic University of Catalonia, (*Universitat Politècnica de Catalunya*, in Barcelona), where it was possible to expand the range of specialties offered, and at the same time opt for a double qualification.

Since this possibility has become available, 5.5% of students of the first-cycle in management computing have now spent a semester studying at the *Polytechnic University of Catalonia.* In this case flexibility affects 17% of credits for the whole syllabus.

Starting in academic year 2003-2004 a collaboration agreement was signed with the Open University of Catalonia, that enabled not only the expansion of free-choice subjects for students of the University of Andorra but also the possibility of following them in a virtual environment. In this case 66% of

students have elected this option. Just as with the previous factor, in this case flexibility affects 17% of the credits for the syllabus.

Graph 1 summarises the different degrees of flexibility included in the syllabus for the first-cycle diploma in management computing, as well as the percentage of students that take this course.
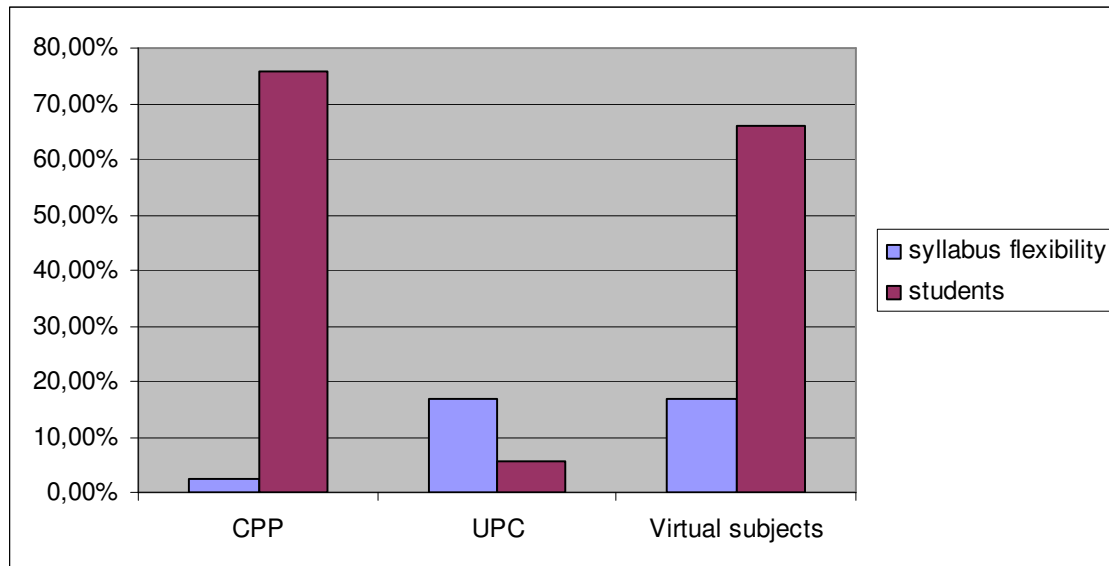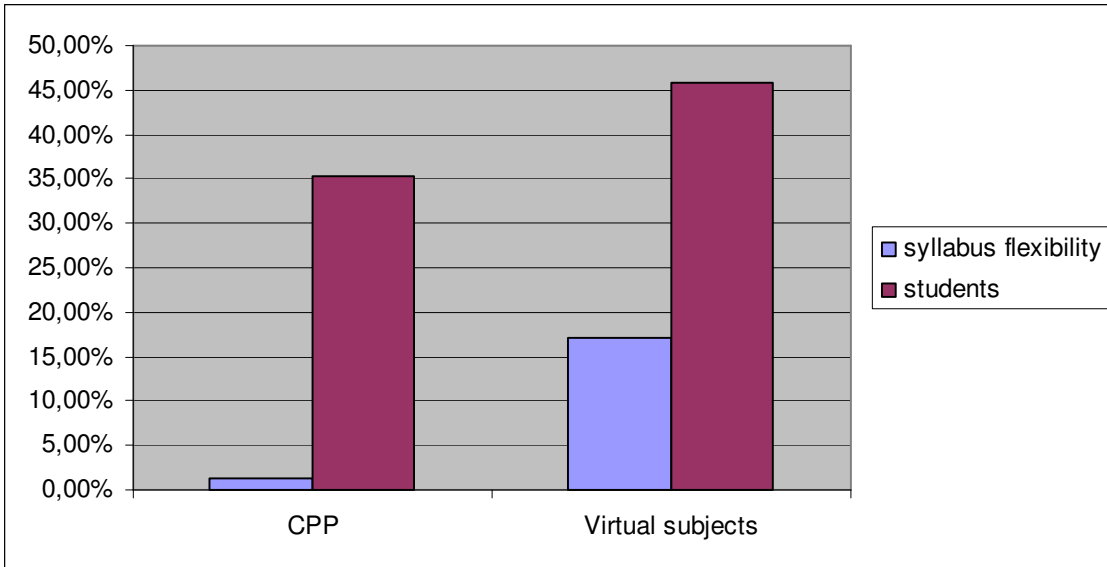

Graph 1: Degree of flexibility and students for the management computing syllabus

The above graph shows how the flexibility provided by the collaboration with the local professional sector, which does not entail the student's physical mobility, is the most frequently chosen option, followed by the one that can be followed using a virtual learning methodology.

Academic year 2002-2003 saw the creation of a new first-cycle qualification in business and tourist activities. This programme was set up in collaboration with the University of Lleida *(Universitat de Lleida)*, which offers a first-cycle qualification in tourism through the *Escola Joviat* in Seu d'Urgell, 10 Km from Andorra. The students of both universities studied subjects in both centres and at the end of their studies they obtained a double qualification. In this case, the syllabus for the qualification included the students' mobility and this is the reason why 100% of the students followed a part of the programme at another university.

During academic year 2005-2006, and due to the closure of the university courses of the *Escola Joviat*, the first-cycle training in business and tourist activities was turned into a first-cycle diploma in business administration. Thanks to the University of Andorra's prior experience in different ways of extending the range of free choice and option subjects, this first-cycle in business administration was started up with the possibility of studying subjects on-line and with a specific CPP programme. To date, 45.88% of students have studied subjects on-line, which provides a 17% flexibility to the syllabus, and 35.29% have followed the CPP programme, which brings a 1.3% flexibility to the syllabus.

Graph 2 shows the different degrees of flexibility incorporated into the syllabus for the diploma in business administration, as well as the percentage of students that follow this course.

Graph 2: degree of flexibility and students for the business administration syllabus

In this case we can see that the flexibility most frequently chosen by students is that involving virtual learning methods. The difference with regard to the tendency observed in graph 1 is certainly owing to the lower percentage of the syllabus in business administration that can be covered under the CPP.

We could represent the flexibility of the structure of the syllabuses of the University of Andorra described in graph 3.
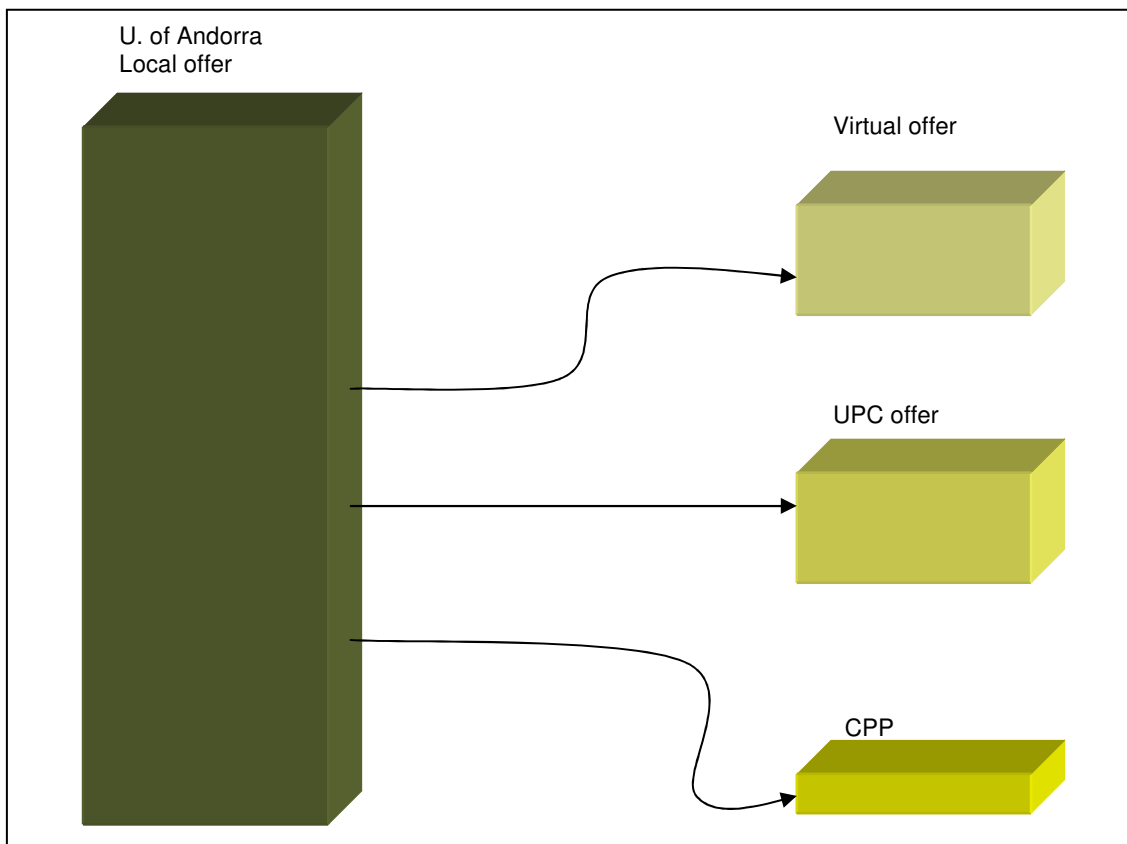
Graph 3: degree of flexibility of the syllabuses of the University of Andorra

During academic year 2007-2008 a new programme of first-cycle government-regulated classroom-based training in education sciences was instigated with the objective, once more, of responding to the demand from Andorra's professionals in this field. From the outset, the syllabus for this programme has built in a compulsory mobility for its students for one academic year in the two neighbouring countries: one semester in a French university and one semester in a Spanish university. The main aim is to achieve in-depth knowledge of the two educational systems co-existing together with the Andorran system in Andorra, which will be the students' future professional environment, as well as an in-depth knowledge of French and Spanish. With this special situation in mind, this compulsory mobility has been financed by the Government of Andorra. At the same time, it has enabled collaboration and exchange with neighbouring universities.

Graph 4 shows the flexibility of the University of Andorra first-cycle syllabus in education sciences.
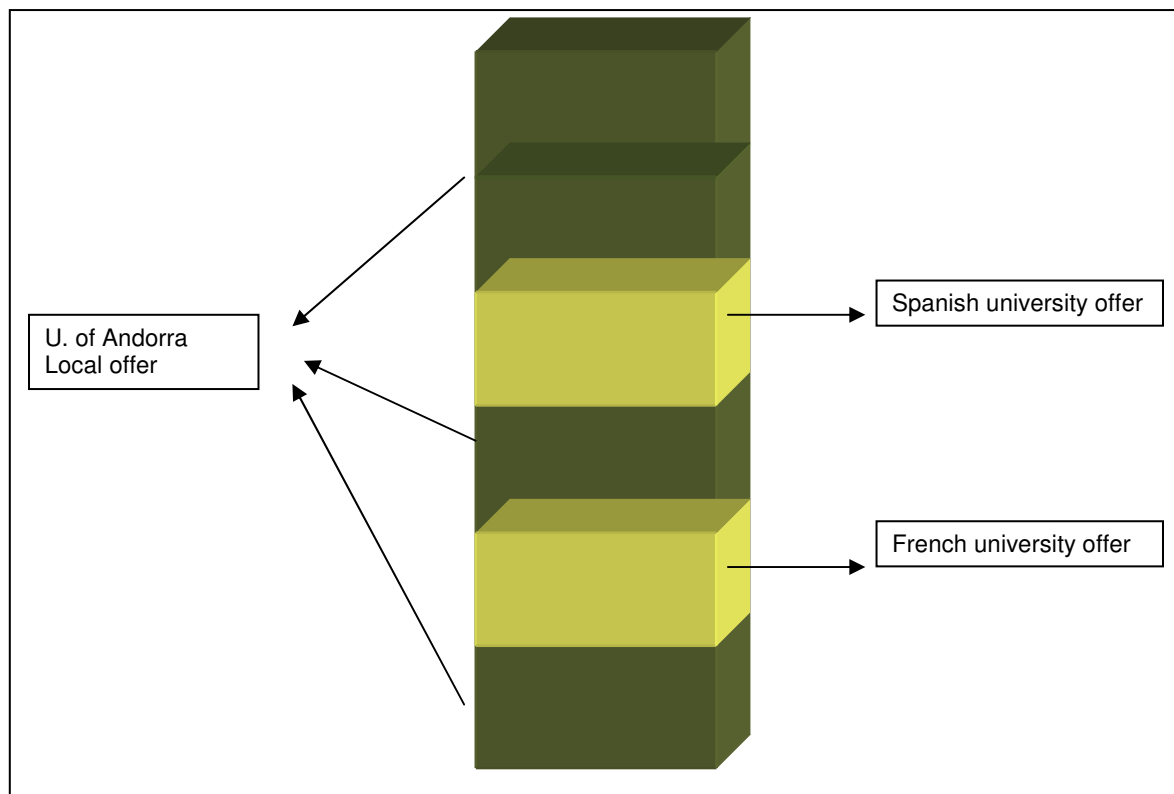
Graph 4: degree of flexibility of the University of Andorra syllabus in education sciences

4. Mobility and e-Learning: the students' virtual mobility

One of the important factors that the Bologna Process emphasizes for achieving the objectives proposed for the EHEA is the promotion of the mobility of professors, students and administrative and services staff. This is a mechanism that contributes to the understanding between various cultures and the acquisition of intercultural skills, while at the same time permitting them to join forces in the furtherance of knowledge and innovation. All these factors are necessary for the training of the professionals of the future in our globalised society. But the problems related to mobility must be borne in mind: those identified in the latest reports of the European University Association, especially in Trends III (Reichert 2003), Trends IV (Reichert 2005) and Trends V (EUA 2007), and which we can summarise as two points: the additional cost and the current problem regarding academic recognition.

Andorra is a country with a close relationship with its neighbouring countries in all regards, including academic. At pre-university level, three educational systems co-exist in Andorra (the Andorran, Spanish and French), and at university level, 75% of students undertake their studies abroad. Against this background, the University of Andorra has from its earliest days built up collaboration with foreign universities (mainly Spanish and French), with the aim of helping to increase the flexibility of its

syllabuses and the mobility of its students, as well as to establish recognition of its qualifications in neighbouring countries. In this context, the problem of the additional cost, although it is true that this exists for those who have opted to pursue their university studies inside the country, is surely not observed to be as great as in other countries where there is no need to leave the country in order to pursue university studies, simply because there is a far wider range of courses on offer within that country's own borders. Moreover, the problem of academic recognition has in the past also been resolved by means of various formulas of collaboration with foreign institutions; although it is true to say that paradoxically, this problem is probably becoming more serious with the implementation of the EHEA, as we will see in section 6 of this article.

If we analyse the current syllabuses for the classroom qualifications offered by the University of Andorra we can identify various flexibility solutions depending on the degree of mobility that they provide to students.

Lorenzo García (García 2007) has differentiated two types of student mobility: virtual mobility and physical mobility. Physical mobility entails the student's transfer of his or her actual attendance to another higher education centre in the same country or in any other, and virtual mobility supposes a student's relocation by means of virtual scenarios.

We will add a further model of mobility: institutional mobility, where the relocation of the student may not be through physical attendance, but this instead takes place at the level of the organisation and financing of the programme that he or she follows. In this way we shall classify the flexibility of the syllabuses of the University of Andorra into three categories:

1- Students' physical mobility

We shall suppose that a syllabus incorporates students' physical mobility when it permits (or requires) the actual mobility of students to other centres, outside the University of Andorra. This is the case in the collaboration with the Polytechnic University of Catalonia, in the case of management computing studies, where mobility is not compulsory, the case of the collaboration with the Escola Joviat, for the studies of business and tourist activities, where mobility is compulsory, and the case of the first-cycle of educational science studies, where mobility is also compulsory.

If we take only the data of the students with non-compulsory physical mobility, we find that 5.5% of the students of the syllabus have taken this option.

2- Students' institutional mobility

We shall suppose that a syllabus incorporates the students' institutional mobility when it includes subjects developed in collaboration with local private institutions, and that also contribute in the retraining of professionals. This would be the case of management computing studies and business administration studies, with the Advanced Professional Cycle (CPP).

75.95% of management computing students and 35.29% of those studying business administration have followed this training programme since it started being offered.

3- Students' virtual mobility

We shall suppose that a syllabus incorporates students' virtual mobility when it includes subjects from other collaborating universities that can be followed by means of virtual learning methods. In this category would belong the range of subjects in virtual format that have been included in the syllabuses for management computing and business administration, thanks to the collaboration agreement with the Open University of Catalonia.

In this case 66% of students of management computing and 45.88% of those studying business administration have followed this option.

With the data analysed we can observe that physical mobility, if it is not compulsory (and consequently followed by 100% of students and, at the present date, funded), is opted for by a minority of students

(less than 6%), whereas the other two modes of mobility are followed by a much higher percentage (over 66% in the case of management computing studies, and over 35% for business administration studies).

5. The introduction of e-Learning: a significant organisational change

From the time of its foundation the University of Andorra has considerably increased the range of courses it offers, by means of virtual learning methods, thanks to collaboration agreements with foreign universities. This methodology has brought the university closer to a group of students with personal and professional responsibilities that prevented them from pursuing a course of study by means of traditional methods.

This first experiment brought about the introduction, in academic year 2003-2004, of optional subjects in virtual format and in collaboration with other universities, to the University of Andorra's classroom-based syllabuses, and represented the greatest expansion of the university's range of specialist subjects offered.

From 2004-2005 the University of Andorra's own virtual learning environment became operational, which even if it has not represented a major increase in the syllabuses of classroom-based government-regulated courses, has certainly constituted a useful support tool for students, providing them with monitoring of the learning process and a supervision that is tailor-made to suit their particular circumstances. These trends are considered as fundamental in the process of adaptation to the new EHEA.

At the same time, the in-house virtual learning environment has allowed subjects to be developed with content specific to Andorra, which has provided a significant additional degree of flexibility to the syllabuses that are being offered using virtual learning methods, in collaboration with foreign universities. This new range of offers has enabled us to export Andorran-specific content to students of other universities, helping to make the syllabuses of other universities more flexible by introducing University of Andorra free-choice credits.
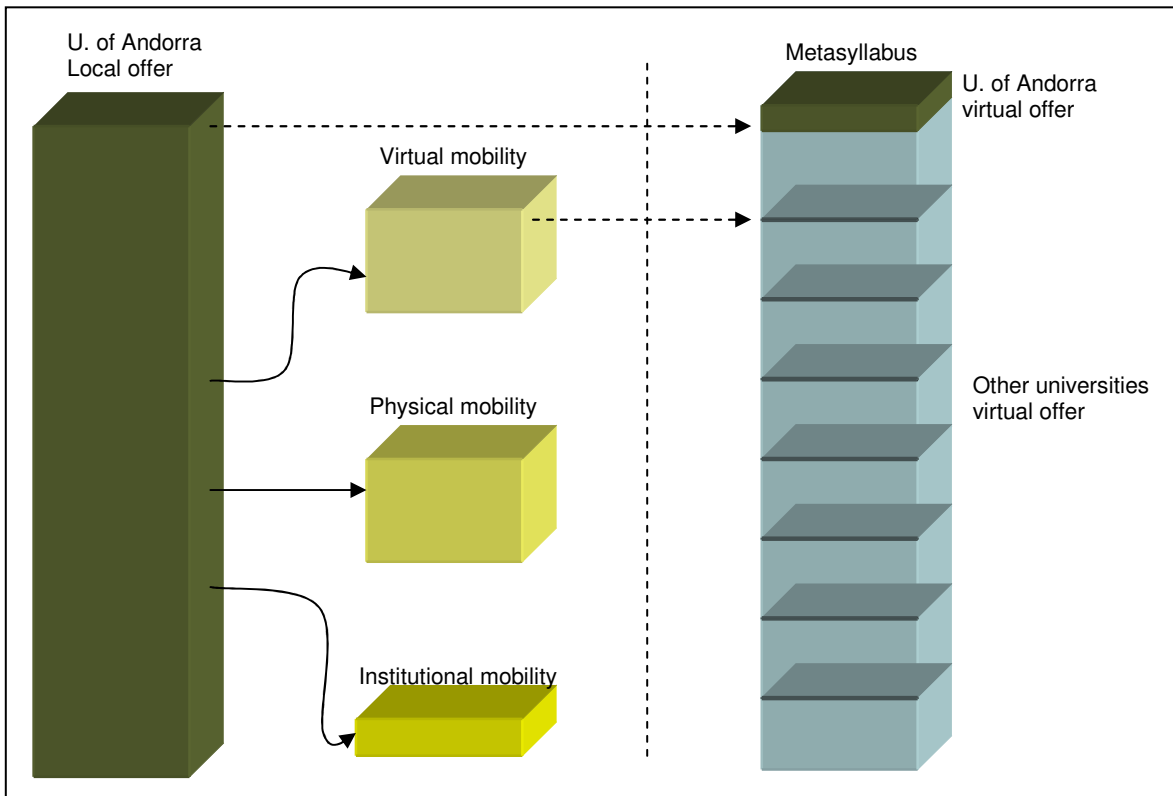
6. The *Metasyllabus*

With the data analysed we can conclude that apart from the institutional mobility that each university might negotiate with the local professional sector, virtual mobility is the flexibility factor in the syllabuses that is most favoured by students.

At the same time, we can say that the introduction of the University of Andorra's own virtual learning environment has given rise to the development of country-specific content and its exportation to students of other foreign universities.

In consequence, extrapolating the case of the University of Andorra, we may propose the *Metasyllabus* as the tool for providing inter-university mobility among students, as a space with content from different universities that may be offered using virtual learning methods and that would provide flexibility to the syllabuses of any university. This environment enables the offer of content from other universities to be expanded, as well as the exportation of a university's own content to a world-wide public, regardless of the size of the institutions participating in it.

Graph 5 shows this concept.

Graph 5: structure of the syllabuses of the University of Andorra. The *Metasyllabus*

7. The obstacles to the new European Higher Education Area (EHEA)

After the experience described, we can say that since its foundation, the University of Andorra has promoted two objectives: the mobility of students between different universities and the creation of joint (and multiple) qualifications through the introduction of various flexibility factors into its syllabuses. The achievement of these objectives may be made more difficult by the varying degrees of adaptation of its neighbouring countries to the EHEA. Currently we are experiencing an initial phase that is already making these obstacles evident: Spain and France, the two neighbouring countries to Andorra and those with which the University of Andorra establishes most of its collaboration relationships, have adopted different approaches for adapting to the new environment. France has adopted first-cycle of three years (180 European credits) and a second-cycle of two years (120 European credits) that may be split up into two separate and non-consecutive qualifications of 60 European credits each. Spain has opted for a first-cycle of four years (240 European credits) and a second-cycle of one year (60 European credits). Andorra has adopted the structure of most of Europe: 3+2 (first-cycle of 180 credits and second–cycle of 120 credits). This divergence hampers the possibility of establishing joint or double first-cycle qualifications with Spain, as well as the possibility for the Spanish universities to give access to the second-cycle for students from other countries. It also makes it more difficult to obtain full masters of 120 credits in France.

These different solutions to conformity with the EHEA, especially that followed by Spain, also entails the need to rework the collaboration agreements established up until now between the University of Andorra and other Spanish universities, where the joint (double) qualification existed. This rethinking will mean greater difficulty in obtaining this double qualification, as can be seen in Graph 6.
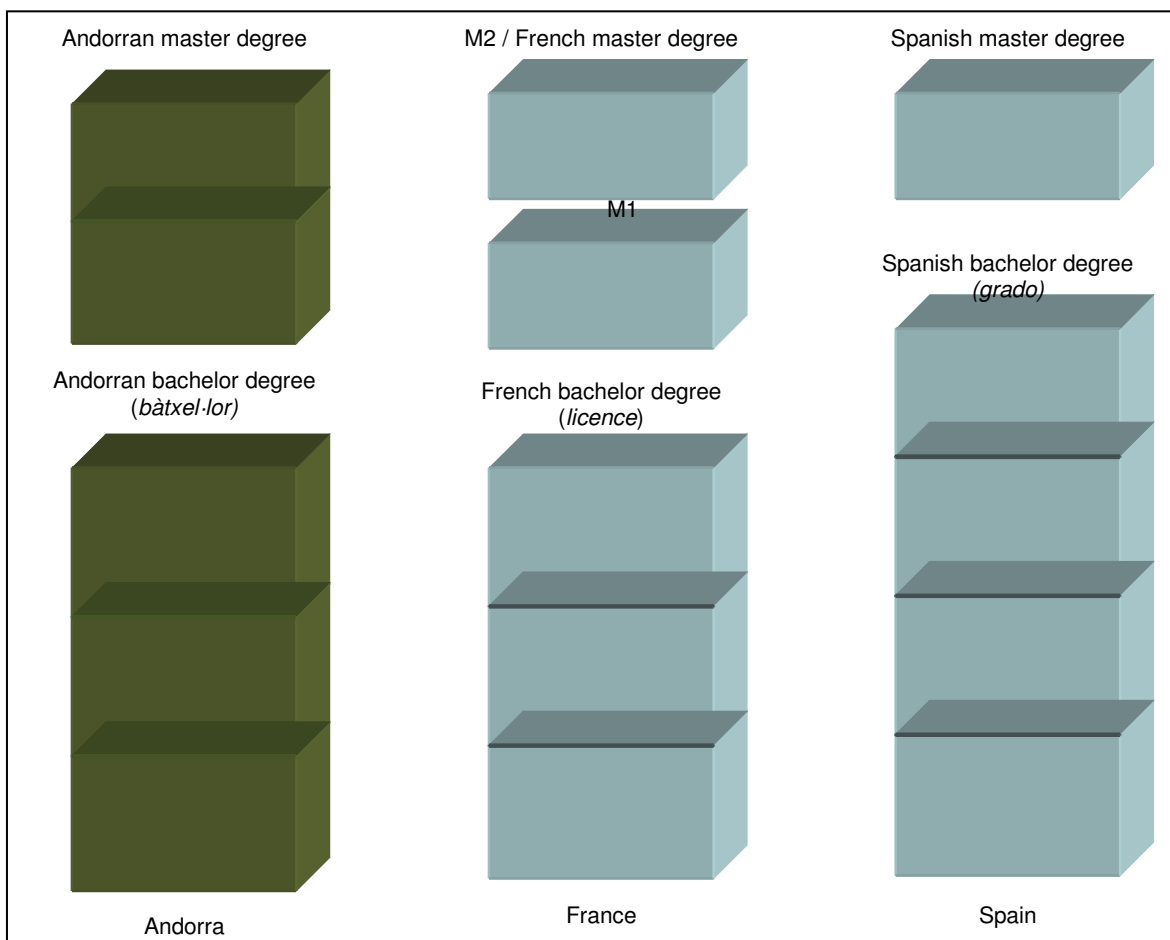
Graph 6: structure of the syllabuses of the University of Andorra leading to a double qualification in collaboration with a Spanish university, before and after the adaptation to the EHEA.

8. Conclusions

After analysing the various modes of mobility for students of first-cycle qualifications in management computing, in business administration, and in education sciences of the University of Andorra, we have divided them into three categories. On the one hand we have differentiated the subjects that entail mobility and that are offered in collaboration with other universities from those that are offered in collaboration with the local business sector, differentiating the latter as institutional mobility. As regards those offered in collaboration with other foreign universities we have differentiated those that entail the relocation of students (physical mobility) from those that can be studied on-line, without the need for relocation (virtual mobility).

The data show, as was to be expected, that a far higher proportion of students avail themselves of virtual and institutional mobility, that is, of that which does not entail a physical relocation. We may therefore say that if the main objective is to increase the flexibility of the University of Andorra syllabuses, by means of the introduction of new specialties in collaboration with other universities, the most effective mechanism will be by means of virtual learning methods.

This approach, together with the extension and exportation of the University of Andorra range of courses offered because of the introduction of its in-house virtual learning environment, leads us to propose the creation of the *Metasyllabus*, a global environment for content from different universities that would enable any university to extend its offer as well as to export its content, regardless of the institution's size.

In this work we also stress the paradoxical difficulty in collaborating with universities of different countries after their adaptation to the EHEA. This increased difficulty is due to the varied solutions adopted by each country.

9. Future Works

It will be very interesting to apply the concepts we have dealt with in this paper also to the third-cycle studies. The doctoral programme of the University of Andorra will start in September 2008 and it defines a list of checkpoints to grant the success of doctoral proposals and their quality. But the small dimension of the University of Andorra and the difficulties for recruiting doctoral candidates make it absolutely necessary to think new approaches, based on cooperation with foreigner universities, to make possible to develop the doctoral studies. The experience acquired in the implementation of the first- and second-cycle will serve us as a guide for a new approach for the third-cycle.

References

Bates, A.W. (2001) *Cómo gestionar el cambio tecnológico. Estrategias para los responsables de centros universitarios*. Barcelona: Gedisa.

Bates, T. (2003) *Technology, E-learning and Distance Education*. London / New York: Routledge.

Burbules, N. I Torres, C. A. (2000) *Globalization and Education. Critical Perspectives*. London: Routledge.

Castells, M. (1997) *La era de la información: economía, sociedad y cultura. Vol I: La sociedad red*. Madrid: Alianza.

EUA (2007) *Trends V: Universities shaping the European Higher Education Area*. European University Association 2007

Duart, J. M. I Kiselyova, E. (2003) *The Open University of Catalonia: A Local-global University Mode*l. A Tapio Varios et al. *Global Peace Through the Global University System. Repuliken Finland*: GUS.

Duart, J. M. I Sangrà, A. (2000) *Aprender en la virtualidad*. Barcelona: Gedisa.

Drucker, P.F. (1992) The New Society of Organizations. Harvard Business Review.

Druker, P. (2000) *El management del siglo XXI. Barcelona*: Edhasa.

Eguiguren, M. i Parellada, M. (2007) *FORMA. La formació continuada a Andorra. Model organitzatiu i necessitats formatives*.

European Commission (2006) *Progress towards the Lisbon objectives in education and training, 2006 report. Comission Staff Working Paper.*

García, L. (2007) Movilidad virtual vs movilidad física http://www.uned.es/catedraunesco-ead/editorial/p7-9-2007.pdf

Ministeri de Finances, Servei d'estudis (2007) *Andorra en xifres 2007*. Andorra: Govern d'Andorra. http://www.estadistica.ad

Ministers responsible for Higher Education (2001) *Communiqué of the meeting of European Ministers in charge of Higher Education in Prague on May 19th 2001.*

Ministers responsible for Higher Education (2003) *Communiqué of the Conference of Ministers responsible for Higher Education in Berlin on 19 September 2003*

Ministers responsible for Higher Education (2005) *Communiqué of the Conference of European Ministers Responsibles for Higher Education. Bergen, 19 – 20 May 2005*

Ministers responsible for Higher Education (2007) *London Communiqué*. 18 May 2007.

Reichert, S., Tauch C. (2003) *Trends in Learning Structures in European Higher Education III.* European University Association 2003.

Reichert, S. Tauch, C. (2005) *Trends IV: European Universities Implementing Bologna.* European University Association 2005.

Tere, R. (2000), *Modelling the Virtual University.* Journal of Workplace Learning. Employee Counselling Today.