

# e-LEARNING 2.0. THE NEW LEARNING/TEACHING PARADIGM

## *Building up the Collaborative Learning Community*

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**Abstract:** The University of Seville (UoS) is engaged in a revolution that affects the methodology used in the educational process and the relationships between the different actors involved in it. The process is driven by the convergence towards the EHEA objectives and the implementation of the new 2.0 educational paradigm. This convergence relies on the introduction of new methods and technologies in order to foster online access to information and services, the development of an infrastructure to support user mobility, and the collaboration between the members of the university community. The evolution from a granular scenario, with 4500 teachers and multiple isolated experiences regarding teaching and sharing information, to the present situation in which all of them accept a corporate e-learning environment has meant a great challenge. The results leave no room for doubt. The University of Seville has achieved the involvement of the entire community in the initiatives, and a spectacular progress regarding the implementation of virtual education services, reaching a penetration of over 80% in terms of the number of students who benefit from the new environment, less than two years after launching the Virtual Educational Services.

## 1 THE NEW SCENARIO

After five hundred years of history, Universities are in a process of change that represents a double revolution in the learning- teaching methodology and in the relations between the different actors involved in the process.

On the one hand, the institution is experiencing a process of evolution from the classical education model whose principal agent is the teacher, to a new one in which the student is the leading figure, origin and destination of any initiative in this area.

This evolution determines the need for highly personalised services and for building a new paradigm, characterised by an easy access to the educational offer and its related services. Moreover, it will consolidate new concepts related to e-government services and in fact, new ways of communication and collaborative working.

On the other hand, the revolution is driven by the establishment of the European Higher Education Area (EHEA), an open environment with no obstacles to the widespread mobility amongst the University Community, outlined by the declarations of La Sorbonne (1998) and Bologna (1999). The convergence towards the EHEA requires answering to new demands in the design of the educational offer and of the learning-teaching methodologies, as well as strengthening the capitalisation of ICT and e-government services in the educational environment.

The new Higher Education Model requires the global redesign of degrees and educational offer, a new evaluation and accreditation system and a more flexible curricular organization. This ends up in the main subject of this article, the need and the fact that learning-teaching methodologies focus on the students' effective work and their learning, and encourage their mobility among different academic organisations, Europe wide, and even world wide.

Multimedia technologies are critical to achieve these goals. Its application allows completing standard Learning Management Systems through functionalities that support teamwork, virtual classes, and any other activity requiring active collaboration through audio and/or video facilities and facilitate personalized tutoring services.

## 2 VIRTUAL LEARNING AT THE UNIVERSITY OF SEVILLE

### 2.1 The UoS Scenario

The UoS is the second Spanish university and the first of Andalusia by number of students, which explains its high visibility and social impact, as it provides educational services to a community of nearly 70.000 students and 7.000 professionals (including teachers, researchers and administrative staff). The UoS educational offer includes 90 degrees, 125 doctoral programs and over 4400 graduate and postgraduate courses.

With these dimensions, it is easy to understand the enormous complexity of the organization, and the importance of an efficient process planning to properly answer to the needs of all members of the university community. These requirements are not marked exclusively by the convergence towards the EHEA, but they also respond to the demands of teachers and students of getting a collaborative e-learning environment and to exploit the full potential of ICTs in their daily activities, from the learning processes to those devoted to academic management (registration, evaluation...).

The UoS convergence towards the EHEA began in 2006, launching several actions according to a well defined Strategic Plan, which decision-making relies on the UoS government team:

- The creation of the Digital University Area and its close coordination with other university services directly related to teaching, such as the Institute of Educational Sciences, the Service for Audiovisual Resources (SAV), or the Center for Lifelong Learning.
- The integration of the Virtual Learning Platform in the corporate technological and human structure of the UoS, specifically with the academic management systems.
- The promotion of an Educational Methodologies Renewal Plan, to grant that every student and every teacher have at their disposal the tools, contents and procedures

needed to complete their learning-teaching processes in an efficient and natural way, adapted to their specific circumstances.

- The promotion of the virtual educational offer among the members of the university community, by promoting the technical infrastructure and encouraging the development of digital content.
- The adoption of widely accepted standards, including SCORM and IMS, to ensure consistent results, integrable with other solutions, and accessible with minimum technological requirements.
- The implementation of a set of accompanying measures to ensure that services are available to the entire community: training in the use of the platforms and new concepts of education, technical and tutorial support, among others.

### 2.2 Supporting Active Collaboration

With respect to the Corporate Virtual Learning Services, at the UoS the first step has been to set up an LMS based on the WebCT CE6 platform, which is being used for general learning-teaching purposes, including training for teachers in charge of eLearning, and a single web access point to the information and to the services offered, including education, eLearning and e-Government related services.

In this process, particular attention has been paid to the definition of the methodological and pedagogical framework for the delivery of eLearning based education and to the identification of the technological standards that apply to this discipline.

To ensure the success of the project, at the UoS the virtual learning support services include technical assistance to the end-users, support to the platforms' technical operation, and follow-up and control activities, monitoring relevant indicators that help define continuous services improvement.

In addition, the UoS has promoted pedagogical support services for content creation, a training plan for teachers/authors, including software tools (Course Genie) and an educational resources design methodology (content design for e-learning).

The goal is to advance in the virtualization of the subjects until, in many cases, all of their contents are available to students through the University's LMS and can be completely taught through it.

This significant deployment has meant, first, an exponential growth in the use of the platform by the university community and, secondly, the continuous

improvement of the LMS platform through the integration of a broad range of collaboration facilities, based on web 2.0 functionalities (wikis, social networks) and on multimedia tools (virtual classrooms, voice tools, technology enabled classrooms, etc.), that make possible the evolution of learning-teaching processes in a way that differs completely from the traditional teaching models.

The total number of virtualised courses covering regular curricula subjects reached 1319, which added to the 200 graduate programs, accounted for nearly 30% of subjects available through the Virtual Learning Platform at the end of the academic year 2007/2008. This value has increased to nearly 2000 subjects already incorporated for the current academic year.

Regarding access to the platform, the number of users and of sessions per user also demonstrate an increasing use of the platform by teachers and students. It is worth to mention that the academic year 2007/2008 began with the connection of 12000 students per month, while in 2008/2009 this number increased to 30000 different users, with more than 50,000 students enrolled, which represents over 85% of the total amount.

The student accesses to the site have experienced an exponential growth, from 26773 in November 2006, to over 190000 in the same month in 2007, and more than 230000 monthly accesses in 2008.

The extraordinary good reception that the Service has had has resulted in an exponential increase in the number of registrations to the courses offered through the LMS platform, as well as in the requests for support from such users, due to the generalized use of the platform among the university community members and to the continuous growth of the courses and contents offer.

### **2.3 Multimedia Technologies for Learning**

The UoS has expanded the possibilities of its virtual learning platform through the integration of virtual classroom functionalities and voice tools, to encourage and facilitate social activities, collaboration, guided practice and evaluation. This is one of the greatest exponents of on-line real time virtual learning.

Virtual Classroom tools allow the use of audio, video, shared applications and presentation of educational materials. Through these resources (Live Classroom) teachers can make use of important interaction elements which would be impossible to include in traditional training methods.

Thanks to the complete integration of these tools with the Virtual Learning Platform, the academic management activities also become easier, as it is possible to link the registration to courses automatically to the list of the attendants to the webinars. This way, teachers can focus on their teaching activities, preparing their virtual lectures, and having granted access solely for students registered in its subjects.

At the same time, the UoS has undertaken other initiatives which have helped to reinforce the Virtual Learning Service, such as the Integrative Technology-enabled Classroom Project, which provides a multi-user workspace with high quality real time audio and video transmissions, within an immersive environment in which users can freely move and interact as if they were all in the same room.

Another consolidated project within this area is the Andalusian Virtual Campus (AVC) which is running entirely on a virtual and distance teaching environment using the virtual learning platforms of all the universities of Andalusia. At present the AVC has made available over 80 subjects for the 2008/2009 academic year.

The integration of the Web 2.0 paradigm is nowadays a reality. The UoS's virtual learning platform includes blogging, podcasting, RSS syndication, social networks and other last generation tools (Elgg, Mediawiki, etc.). The main intention behind this is to encourage and normalise collaboration and knowledge sharing.

Furthermore, it is promoting open access to educational materials for anyone, anywhere, without limiting its accessibility because of issues related to intellectual property rights, through the OpenCourseWare (OCW) project.

This portfolio of projects define a mature and integrated scenario for the provision of virtual learning services to the UoS users community.

Looking ahead, the University is committed to further develop and qualify their Virtual Teaching and Learning Services, with the aim of promoting the students social network and mobility through the development of projects concerning Delegated Authentication which allows "single sign-on among universities", the use of Learning Objects repositories, the strengthening of OCW initiatives and the introduction of Knowledge Management Systems, among others.

As an additional measure to guarantee mobility, the UoS takes part of the Eduroam project (Educational Roaming), which allows connectivity and mobility through different worldwide wireless

research networks participating in the project ([www.reinus.us.es/eduroam.es.html](http://www.reinus.us.es/eduroam.es.html)).

The design and implementation of a Learning Objects Repository represents a significant advance in the exploitation, re-use and optimization of the updating efforts of contents generated by other authors, either directly or with minimal changes. Having a single access point to structured and indexed educational resources (learning objects) strengthens the Community and allows any author to learn about what others are developing in the same field. This is particularly useful in environments where there is plenty of material generated for courses plus a significant volume of teachers and students in continuous growth. The repository will be integrated with the UoS's LMS platform and will be defined according to standards in order to allow communication with other universities' repositories.

### 3 CONCLUSIONS

At present, the UoS counts on a mature organisational and managerial scenario, oriented to the establishment of the EHEA and of the student oriented learning model.

To this aim, technologies, procedures and methodologies have been merged to allow the optimisation of internal procedures, the access to information and indicators on which rely the decision making process, the use of e-learning platforms and virtual campus, and the deployment of e-Government services in line with European, national and regional directives. In parallel, strengthening the implementation of the Educational Methodologies Renewal Plan, and committing to quality and continuous improvement in all of its processes.

As a result of these actions, all the members of the UoS community count on an integrated and homogeneous scenario, characterized by:

- Access to a virtual learning platform, integrated with the academic management systems of the university, and enhanced with services and features to support collaboration and interaction between the different members of the learning community.
- Support to the virtualization of contents, through a collaborative model, in which a team of experienced professionals works together with the teachers and authors to provide advice and technical support to the production of digital content later accessible through the virtual learning platform.

- The availability of digital educational resources from more than 2000 subjects through virtual classrooms, and of complementary services encouraging active collaboration, such as voice and audio tools, wikis, Elgg, blogging or content syndication.
- The benefits of sharing experiences and digital resources in an online community of more than 50000 students and 2000 teachers, and the possibility of accessing in a short or medium term, to resources from other universities, thanks to initiatives launched to increase mobility, as the federation of identities and repositories.

At present, the UoS virtual learning platform gives support to over 600 concurrent users, while over 10000 users connect to it daily. This gives an idea of the impact that the introduction of the Virtual Learning Service is having in the university community. These figures have made the project of the UoS at the forefront at national and European level in terms of implementation of ICT as a means to improve the teaching/learning methodologies and to provide universal access to the educational resources of and to their community.

The key factors for this revolution have been:

- The implementation of mutually supportive initiatives, in order to take benefit of synergy to achieve goals. So, technological actions are always accompanied by methodological and reorganization approaches, training plans, dissemination campaigns and support to users.
- The involvement of the entire community in the modernization processes and the establishment of accompanying measures addressed to the professionals involved in the provision of services and to the final users.
- The selection of flexible, scalable solutions, based on broadly extended standards, able to be merged in a comprehensive solution, as results of a never ending iterative optimisation process.

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