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## CREATION OF AN AREA FOR THE TEACHING INNOVATION USING NEW TECHNOLOGIES.

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Our paper depicts the experience on the design of an interactive teaching-learning environment for its interdisciplinary experimentation in university education. Using this environment, we want to train the students of the degree in Pedagogy and Social Education on those Information and Communication Technologies that can be applied to the education and that allow them to join the Information Society.

In that environment, thematic blocks are going to appear. These blocks have a transverse nature and allow to link subjects of both university courses. This possibility of developing our students' learning using the internet and, additionally, from the different subjects favours:

- The possibility that the teachers of different university subjects do work their subjects contents in collaboration
- The availability, in a common area, of all those information resources, materials made for teaching, experiences recorded in professional circles, evaluation and follow-up instruments, studies of cases, etc. that teachers have individually.
- The virtual platform is presented as an area of interaction and exchange of experiences with the professional contexts, institutions, associations or groups where our students carry out the practicum.

### 1.- Introduction

Nowadays it has been overcome the view that proposed a computer instrumental learning. The new learning on the handling skills of the Information and Communication Technologies (ICT) are based on a personal, academic and professional use of this tool. In this way, the ICT must be a tool to communicate, express oneself, manage information, solve problems, create knowledge, etc. But a training on them must also include the understanding of the social impact their presence in the society causes. So, the education institutions must develop proposals that allow the training in competences and attitudes about the ICT in the students of all educative levels. The purpose would be solution to their personal, academic and professional needs and not to the commercial pressures of one sector of the society. This is thought as a challenge the University must face up.

During the last year we have carried out a research, financed by the Ministry of Education, in six Spanish Universities (Cabero, 2002). In it, we investigate the ICT presence, their use in teaching and the difficulties related to their use that teachers face up. Although the computer is one of the resources considered more essential in the university activity, its presence in teaching is minimal. This matter is related to the volume of resources available in the universities (especially to the so called New Technologies: telematics). The teachers training is limited and their training to use these resources in education is almost non-existent. The tasks of academic and research management are based outstandingly on the ICT. But the teaching in presence, the tutorships, practical... aren't enriched by the ICT's possibilities, and they are only used to present the information. Even so, the lecturers see the need of a technical, didactic training in order to produce teaching materials. To sum up this study we stress:

- The need of establishing plans for the teachers training in resources.
- The poor variability of means, instruments and audiovisual and computer resources that teacher are using.

- Teachers tendencies to consume resources instead of creating and designing their own aids and didactic resources.
- The poor variability of purposes teachers use them for.

Nevertheless, the different universities' managing bodies that take part in the study have initiatives to introduce the teaching use of the ICT. Most of the initiatives are collected in the field of the teaching innovation.

## **2.- A different use of the ICT in the university teaching: from the presentation of information to the active construction of knowledge**

In the University of Santiago de Compostela, last academic year it was carried out an announcement of projects about teaching innovation where we presented our proposal of using the ICT. In this publication we are going to describe the premises that directed the design of an education environment in the internet and to propose how we can use the New Technologies in a high quality university teaching in a different way. This innovative project is based on the following assumptions:

1. In the education proposal, the separation between theory and practice, that is a current characteristic of the structure of the university subjects, hinders that the student can apply in the reality knowledge, skills and attitudes acquired in the education process.
2. The telecommunications possibilities also enrich the teaching in presence. The time and space devoted to education can be diversified (different places –classroom, library or personal space- and different times devoted to the education). The same resources and materials that are used in the class are at the student's disposal according to their necessities for its use outside the class.
3. Through the Information and Communication Technologies, both the student and the teacher have a synchronous and asynchronous communication channel that makes the possibilities of interaction flexible.
4. The possibilities of the Information Technologies allow a different, varied and multiple representation of the knowledge (data handling, digitalisation, high quality record, multiplicity of codes...).
5. The ICT possibilities to create teaching-learning environments.
6. The possibilities of interacting that offer these technologies can help to develop proposals of collaborative work.
7. A high quality training proposal must facilitate students' decision-making, choice of strategies, production of didactic materials and self-evaluation, so that they make their own way for creating knowledge.
8. These technologies can offer possibilities to develop an education environment that is used as a bridge between the training and the professional development: to analyse real problems, to know needs, to experiment proposals, to apply the knowledge to the professional reality and to innovate it.
9. The education environment we designed must facilitate the access to knowledge using different technological resources for education. So, it is necessary to develop specific education tools in order to direct the information management, to manage the learning, to create contents and to optimise the time invested in training.

10. The environment we designed must contribute different visual stimulus, different possibilities of navigation through the didactic materials proposed, demand actions and make students feel curious about learning.

11. The environment must combine correctly both the audiovisual and the multimedia communication.

Both the student and the teacher are in a society where the learning needs are changing. This is a continuous challenge in training that nowadays, more than ever, has a total permanent nature. So, an education environment with these characteristics shouldn't fulfil the function of mere exhibitor of information, but it must make students' skills flexible and dynamic. In this way, we pretend that the students acquire good communication skills, a capacity for independent learning, but at the same time that the students acquire skills in group work. The student (future member of the active population) is also expected to be able to adapt to changing circumstances and to know where to obtain information and how to process it. The most innovative characteristic that our project of education environment contribute is that it isn't distance learning (as it can be deduced from a training environment in the Internet). It is understood as a complement that enriches the in presence teaching. In this way, the innovation proposal takes total sense because it overcomes the conception of distance learning that is generally attributed to a virtual environment just for being on-line (when it is separated form the formative curriculum in the classroom). In presence teaching keeps its prominent role, because, as we already know, New Technologies don't replace but complement.

### **3.- Characteristics of the learning environment based on ICT**

As regards the design of the environment learning we have created, we can say that some aspects such as the following predominate:

- Presentation of high quality and up-dated contents, as well as an attractive structure for the environment users. Creation of a lively, easily comprehensible and very intuitive aesthetic. This allows an easy tour through the pages, without causing heaviness or boredom. The people who use the environment can navigate freely by it to create actively their knowledge.
- Information presentation in a non-redundant way, including, whenever possible, examples, explanatory tables and animations that complement and facilitate the subject understanding. These will be seen by the person when reading the information (simply by moving the mouse over the sentences highlighted with this aim). In the same way, the text is used for, through them, reaching other places of the environment. This is achieved by linking the subject contents using links inserted in the text. In this way, the user doesn't waste time or motivation in their search. Using it, it also pretended to achieve that the students feel a cognitive curiosity that allows them link the class information with that one they themselves are constructing through the environment.
- To always insert a brief explanation of the aims that are tried to achieve in each content module and of the activities that are proposed.
- That the pages' load time is short. We try that both the teacher and the student don't think that they are wasting time. The users must go out form the environment with useful work material, which would generate an efficiency and high quality sense towards the page.
- To promote the interaction. With this, we prove that our environment is not only a information searcher but it also promotes the student communication with anyone that is decisive in their training (teacher, classmates, practice centres, companies, institutions, other web pages). All of this is achieved including videoconference services, e-mail and chat in the environment...

- The student will be able to share, modify and enclose documents in a file for the teacher or other classmates, and even they themselves can create them with the material. It an open system of knowledge.



*Figure N° 1: Main page of the education environment*

As it can be seen, in this prototype we don't use a normal page layout, but we turn the user's monitor into a very intuitive tool. On the left, the **work spaces of the education environment** are: Thematic Blocks, Common Resources, Professional World and Exchange Area. On the right, there is a blue zone where the contents of each of these areas are explained –as they are selected-. To navigate through the environment, the user interacts directly in any of the areas. In this way, when clicking over one of the icons, the presentation disappears and the corresponding content of the selected area appears (see Figure n° 2).

So, for example the area Thematic Blocks consists of 8 different blocks. The users only have to select the block where they want to work. As it can be seen, the colours and the aesthetic in general, have been designed to be attractive for students. All the work spaces are always visible to be used by the student, whatever thematic block they are.



Figure N° 2: Area: Thematic Blocks

The other three areas of the environment are the following:

- **Common Resources:** it offers the user didactic resources selected by the teachers, institution resources available in the Internet and even commercial resources available in the market. These resources propose in a linking way to each of the thematic blocks proposed.
- **Professional World:** it facilitates information and interaction with the practice centres where the students join with professional collectives, Associations and projects.
- **Exchange Area:** There we can see up-date news and events, exchange thematic forums between Teachers and Students, and tools to facilitate the contact between Teachers and Students, to back the tutorships up, etc..

As it can be seen, the Areas of the Education Environment are thought starting from a flexible and open concept where the interaction is one of the fundamental cores of the project. An interaction not only with the university reality, but also with the professional one. The Education Environment serves as “bridge” between these two worlds that, so often, are separated. It turns into a source of permanent training for professionals and into a resource for the enrichment of in presence teaching.

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