

**PROCEEDINGS OF THE  
IADIS INTERNATIONAL CONFERENCE  
e-LEARNING 2007**

**part of the  
IADIS MULTI CONFERENCE ON COMPUTER SCIENCE AND  
INFORMATION SYSTEMS 2007**

**Volume I**

**LISBON, PORTUGAL**

**JULY 6 - 8, 2007**

**Organised by  
IADIS  
International Association for Development of the Information Society**

# AN OPPORTUNITY FOR THE IMPROVEMENT OF HIGHER EDUCATION THROUGH THE INFORMATION AND COMMUNICATION TECHNOLOGIES

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## ABSTRACT

Nowadays, e-learning, teleformation, or training based on ICT (Information and Communication Technologies), play a fundamental role in the improvement of the learning processes that is taking place at the Universities. On the one hand, the incorporation of the ICT in a face-to-face, distance or blended modality and, on the other hand, the European convergence process, have influenced on the change and improvement of the institution, in general, and the teaching-learning process developed in Higher Education, in particular. Nevertheless, it could be necessary to remark that the basic objective is to improve the attention of the users (in our case, students of Education Sciences). Another important aim is to optimize the resources based on Internet. But, mainly, in order to promote innovating processes which simplify and make agile not only the work of the teaching staff and students but also the communication among them. The purpose of this paper is to find out if pre-service teachers prefer a virtual modality during the Practicum period, when they finish their studies on Education.

## KEYWORDS

E-learning. Higher Education. Practicum Supervision. Information and Communication Technologies.

## 1. INTRODUCTION

Through this communication we seek to deepen on the possibilities that the e-learning may contribute to the training process that takes place in Higher Education nowadays. At the present time we find ourselves immersed in the developing European convergence process which embodies the need for an adaptation of the learning strategies and methodologies to the new demands of the future University in Europe.

Firstly, we will try to establish a parallelism between some of the needs of this new European Higher Education Area and the possibilities that the use of virtual teaching may contribute in the answering of the demands. Now, we will explain these possibilities by means of a project that is implemented right now to consolidate the virtual supervision of the education students in training. This project is part of a wider research funded by the Spanish Ministry of Education Programme of R&D entitled "*Designing contents for education students' reflective practice in a Virtual Learning Environment (VLE)*".

In the last part of this communication we intend to analyze the different opinions of the students regarding this new Practicum modality. We will analyze which are their possible motivations when preferring a more traditional modality (face to face) or this more innovative one. These opinions were gathered by means of a questionnaire distributed among the students supervised in the last two years.

## **2. E-LEARNING AND THE EUROPEAN HIGHER EDUCATION AREA**

In the last years the society has achieved great advances in the matter of technologies and communication development. Due to this huge progress we find ourselves in an information and knowledge society with possibilities that we could not think of some time ago. Education can not ignore these advances and must look into the future stating new educative formulas to achieve these possibilities.

Taking as an outstanding point these statements and also very related to the long life learning idea appears the e-learning, which according to Rosenberg (2001) is understood as the education, the acquisition of knowledge and skills by means of the use of Internet based technologies.

### **2.1 Towards a European Higher Education Area (EHEA)**

The Spanish University is engaged, at present, in a convergence process along with other European universities that should finish in the year 2010 with the consolidation of the European Higher Education Area. A space where, the different educational systems will harmonize and facilitate an effective exchange of students. This process, also known as the Bolonian Process, introduces some changes into the university systems such as the importance of the students' mobility or a new learning process conception more student-centered and based in their autonomous work.

Zabalza (2005) points out that one of the challenges for the future derived from the central ideas of the European Higher Education Area refers to the role ICT should play in the practical learning of the future student, a matter extensible to any other Higher Education field. Blended learning systems and distance learning are autonomous learning modalities that require, among other things, an intense tutorial system and technological substructures and supporting didactics.

Public authorities have taken measures so that the new technologies could be accessible to all citizens (Cortina, 2002). The European Union has adopted a program for the development of virtual education in the different member countries. It has to do with an impulse of the European Commission for the implementation of the new technologies in education. ([http://ec.europa.eu/education/programmes/elearning/index\\_es.html](http://ec.europa.eu/education/programmes/elearning/index_es.html)).

ICT may contribute to more flexible learning environments in the learning field, which could be student-centered and allow the teacher to do an individualized and continued follow up tutorial action through all the learning process. It is also important to highlight the great power that, as a communication tool, may contribute a system based in such a wide network as the one provided by Internet. Some of these characteristics appear to be very attractive in the present convergence process towards the EHEA so that the use of new technologies becomes a potential vehicle in this way.

### **2.2 E-learning in the University**

As Cebrián (2003) said, the universities should make true the new emerging concepts (long life learning, student-centered teaching, opened and distance education, teachers' role changes...) and generate the necessary actions (teaching updating, introduction of the new distance teaching models, an even closer relationship among the University, the enterprise, and the society, the intensive use of Information and Communication Technologies –ICT-), so that the required innovations and changes may be accomplished.

In statements like these we can prove the important role the ICT play in the university innovation process and the good acceptance of virtual surroundings that the use of e-learning platforms supplies.

The way in which e-learning is developed in the universities is not the result of a single model but a variation in the structure and the virtuality level depending on some factors that Sangrá (2001) summarizes according to the type of initiative, supply, and distribution technology.

The incorporation of e-learning to the different university realities has been accompanied, at the same time, by a pedagogical adaptation process to the new surroundings. In this way, we may point out five ways with which virtual education has evolved since its appearance (Fages, 2004):

- Correspondence model: it is not virtual education as such, but it is based in the distance education traditional model, with printed material to deliver to the students.
- Multimedia model: incorporation of the new technologies (interactive videos and audios)
- Telelearning model: incorporation of the interactivity by means of videoconferences.
- Flexible learning model: incorporation of Internet and interactive multimedia systems.
- Flexible intelligent learning model: incorporation of the interactivity effort by means of Internet and other technological platforms.

### **3. PRACTICUM AND E-LEARNING: VIRTUAL SUPERVISION**

Once we have commented the possibilities of e-learning within the new European Higher Education Area, let's focus in its potential in a particular area of the university teaching: the education students' practicum.

Practicum is the period of time within the program of the different education specialities that the students spend in educational centres doing real training of their future profession. The importance of this contact with the real world is huge for the future teachers who, for the first time, go from their study compiled theory to the reflexive practice of this theory.

The initial training of teachers shows different shapes in the many European Union countries and depends on the policy and the social demand. Nevertheless, maybe the characteristic that unites them the most is the real training period. During this period, the student will need an advisor from the University to guide him/her in this new teaching role, that person will be the supervisor and from the same school a person that will represent the tutor. This relationship will be crucial for the teaching of the students in the training period.

According to Stephenson (1999), one of the basic elements so that these relationships may produce a qualified training in the students and make them behave all the time in a reflexive way is communication. This is the main motivation that may lead us to seek alternative tools to the ones traditionally established and to make us desire to find them in the virtual teaching field.

Internet contributes some advantages as a communication element that breaks up the obstacles of time and space. That's why, the creation of web based teaching and learning environments may contribute to the Higher Education field and, in fact, in the Practicum field that we were commenting previously, elements of accessability and motivation that the face to face traditional education can not facilitate.

Future teachers, everytime, more and more familiarized with the Information and Communication Technologies (ICT), should have at reach all the possibilities that we can offer to guide them in this stage so decisive of initiation in their teaching career. Looking for these possibilities in the world of virtual teaching we seek to take a step of adaptation in the new characteristics of the European Higher Education Area and to get closer to the demands of the present Information Society.

#### **3.1 Some ICT based alternatives to improve the practicum**

There are several alternatives that intend to improve the quality of the teacher's initial training through the ICT. Some seek help in the use of audiovisual media (Lee and Wu, 2006), others use the aid of external mentors through online systems (Knapczyk and others, 2005), or go deeper into the learning communities that are created in these environments (Owen and Takaki, 2005).

In Spain there are strong research groups that study the practical training of the future educators, as well as the training based on the ICT. Among the last ones outstand: Málaga (Research Group HUM 369 and UMA Virtual Teaching, directed by M.Cebrián); Balearic Islands (Campus Extens, peoniring initiative, by

J.Salinas); Cataluña [a wide group integrated by UOC (Research Group EDUS/GRINTIE and other research groups from the IN3), UBVirtual, and UAB...

### 3.2 Our virtual supervision project: AulaWeb

In the context of the initial training of the teachers supported by e-learning tools the project "FOR-eLEARN" (Formation and e-learning) comes forth and we focus on it to explain the experience that we will describe immediately.

Basically, the objective of this project is to provide tools, methodologies and resources to obtain a more efficient follow up and help in the Practicum of the Education students, all integrated in a virtual learning environment. At the same time, we seek to improve the quality of this teaching training period by using dynamic tools based on Internet.

The e-learning system that is being used in the project and with which we intend to accomplish these results is the AulaWeb platform. AulaWeb is an application created by the Politechnical University of team<sup>1</sup> Madrid based in the client-server model.

Its functioning design is very simple: the different types of clients (students, teacher-tutors and teacher-supervisors -or managers-) interact with the system thanks to a central server where a platform is installed through a web navigator, and from there the communication process is started.

AulaWeb is an interactive web-based teaching and learning system and used frequently as a didactic support in face to face courses. It is a method effectively proven in the Politechnical University of Madrid which now we are incorporating in new areas with contents of a more social orientation.

Some of the main characteristics of this online type of supervision that seeks to be the base of the Practicum quality improvement are the following:

- Communication tools → Synchronic (chat) as well as asynchronic (forums, news, observations). We pretend to develop a fluid communication without space-temporary barriers among students, supervisors and tutors.
- Individualized follow up → To obtain an assessment at any time of the students' learning process and guide them in the best way, in a most effective way.
- Information Access → To have access, at any time, to the resources and tools that are considered necessary for the students learning at any time.

We can see the characteristics of the virtual supervision in the form of a design (Figure 1).

So that an experience of these characteristics in which the supervision of the preservice teachers and the ICT are united, may be successful. Pratt and Stevenson (2007) point out some fundamental points:

- Communication
- ICT adequate training
- Help between peers
- Adapted Infrastructure

These are only some examples of the key elements that we may contemplate at the beginning of an experience such as this one; we may add some others such as the motivation and the commitment that all the implied agents should present when facing virtual supervision.

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<sup>1</sup> The FOR-eLEARN project is a project coordinated between the University of Granada and the Polytechnic University of Madrid, and it's funded by Spanish Ministry of Education Programme of R&D.

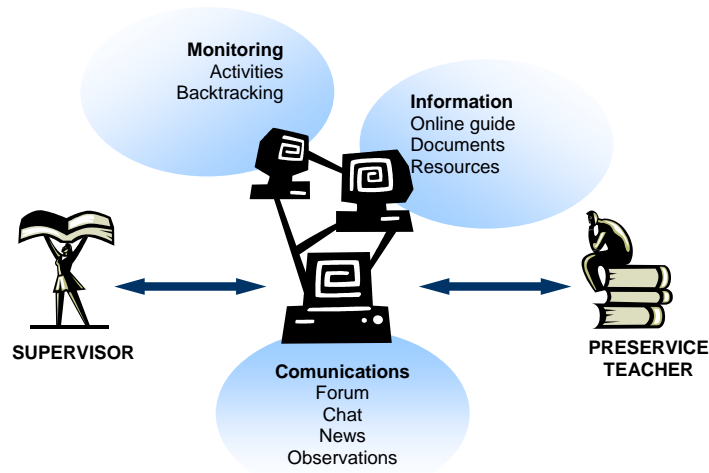


Figure 1. Virtual Supervision Model

#### 4. EDUCATION STUDENTS' ATTITUDES TOWARDS THE PRACTICUM VIRTUAL SUPERVISION

The data presented immediately were obtained in a two years space of time, 04-06, and are based in the "Initial questionnaire for the virtual supervision of the Practicum period", a tool that consists of 26 items about the use of the computer, access and difficulties, analysis of aspects related to the development of face to face or online seminars/courses, perception of ICT training, etc. In its formulation the questions are varied: it has closed dycotomic questions, opened or free, of multiple and politomic questions' choice and the assessment by means of the Likert type scale (1 a 5).

##### 4.1 Participants

The questionnaire was applied in two different occasions (courses 2004-05 and 2005-06) to the overall population of Practicum university students supervised by a teacher (natural groups), during a seminar made at the beginning of the Practicum period (M-I), which lasts six weeks and is completed (in a total of 4 months) with a second period of eight weeks (M-II). To apply this questionnaire, it was considered more adequate that it should be anonymous and also not to link it to any grading. Nevertheless, the students should be instructed that their answers are very important for the decision making regarding the methodology used in the further development of the training supervision. It embodies 26 items with closed and opened answers, which include identification, perception, knowledge and use of the Information and Communication Technologies, assessment and opinion.

##### 4.2 Results

The results we express immediately refer to the students' attitudes that, a priori, are showed regarding the application of "distance" or virtual seminars, in opposition to the face to face attendance modality in the University. We need to take into account that the last one has to do with the development of a seminar which lasts three hours, one day per week. We relate now this variable, that we call "preference" (attitude towards), with others, such as the geographic proximity between the University and the teaching center (Primary Education and/or Secondary Education); and the previous training in the use of the Information, and Communication Technologies in their learning.

#### 4.2.1 Do they show preference for a distance methodology?

From the results obtained, disposal and access data are interesting, as well as the will and the desire of taking online courses. For example, in the item 22 (“In case of being allowed to choose, would you do these seminars in a completely face to face modality?”) at a first moment only the 35% answered “no”, in opposition to a 27.78% of students from the following course.

In the course 2004-05, the collection of supervised Education students that accomplished the questionnaire, outstand for preferring to choose the Practicum on line modality in a 35%.

In the course 2005-06, from the totality of students enquired only at the first moment the 27.78% preferred the virtual Practicum.

Let’s see the classification according to the students’ age and gender for the ones who preferred the virtual modality in these two years in the following tables:

Table 1. Distribution according to the age of the students who prefer virtual supervision.

Age			
18-20	20-22	23-25	+ de 25
8.33%	50%	33.33%	8.33%

Table 2. Distribution according to the gender of the students who prefer virtual supervision.

Gender	
Male	Female
25%	75%

The profile of the students who prefer the virtual supervision is that of a student of at about 20-22 years. The access type in the first year of the questionnaire is preferably in cybercafes and the faculty classrooms; nevertheless, we can appreciate from the answers of the students of the following year that this access was mainly achieved from their homes. Curiously, the group of the ones who appear to have a better disposition (53.85% y 45.45% at home, respectively) chose the face to face modality in a greater extent. These trends appear in the Table 3.

Table 3. Availability, access to computers with Internet connection

	Student in favor virtual supervision		Students in favor face-to-face seminars	
	2005	2006	2005	2006
Home	42.86%	37.5%	53.85%	45.45%
Student classroom	57.14%	25%	46.15%	31.81%
Faculty				
Work				
Friend/relative’s home	14.28%	25%	30.77%	13.64%
No place			7.7%	
Others (Cibercafe...)	85.71%	12.5%	7.7%	9.09%

Some of the reasons for the presence of blended learning/on line modalities are:

- There are no time-space barriers
- Flexibility at schedule level
- To supply, only sometimes, face to face relationship
- Possibility of a better reflection, individualization, and confidentiality through written communication

To this we can add, less frequently, others of a more general character, such as “Virtual courses help to get to know the ICT”; “New technologies comfort”; “ With Internet you have access to more information”; or, simply, “It is a good idea”.

#### **4.2.2 Is there a correlation between the training place and the preference for a distance choice?**

The most frequent response has been that the students prefer a virtual supervision over spatial (motion) and time (lack of time) motives as an argument in favor of a combination of both forms (virtual and face to face) even though in the course 2004-2005 only the 28.57% of the students who preferred the virtual supervision are doing the training in a location geographically far from the city, being a 40% in the course 2005-06. The majority of the ones who chose, exclusively, a presential modality (92.31% in 2005 and 69.23% in 2006) are staying in the training center in the same city.

#### **4.2.3 Is there a correlation between “previous experience training through the ICT” and the preference for a “distance choice”?**

Among the students who prefer virtual supervision there is almost no difference regarding previous training, answering the 42.86% that they “do not have a previous experience training through ICT” and the rest said “yes” in the course 2004-05. In the course 2005-06 the 40% the students enquired referred to have experience in this type of training. Among the ones who don't prefer it, there is a bigger percentage of those who recognize they don't have a previous experience (61.54%) in the course 2004-05, while in the following year the scale bent to the side of the ones who do have an experience, being a 61.54%.

#### **4.2.4 ¿Is there an evolution in the preference expressed by the students regarding a “distance choice”?**

Soon, the data that we will obtain in the course 06-07 is going to help us to find out if the tendency is similar or if there are important differences and what the type of evolution is.

## **5. CONCLUSIONS**

Maybe the main conclusion of this study is that “not everything is worthy” in Higher Education (at least for the students enquired). Any system based on ICT for the Practicum period follow up is, in principle, valuable for the comfort, novelty, time and space facilities for the students physically far or the ones who work or /and take other courses at the same time... But, if they are allowed to choose, most of them agree in doing the seminars totally in a face to face modality. They prefer the face-to-face seminar for the common expositions and the interchange of ideas, materials, notes... A general criticism can be made to the communicative elements that e-learning systems bring us is that they generate poor, fragmented, mechanic and little reflexive information, based almost completely in small text messages and files interchange, that has almost anything to do with the rich communication obtained in a face-to face environment. Coincidentally, the students who participate in our study don't want to lose their contact with the faculty. They want a personal contact with their classmates and supervisors, mainly with the supervisor, who is responsible for a great tutoring, personal and professional work. We speak about the myth of the greatest interactivity (García Manzano, 2004), as the false belief that online education generates in itself a more collaborative working environment in which the interaction standards among the totality of the group are reinforced by the disposal of the telematical resources that allow a multi-channel, flexible, immediate, asymmetric communication.

The students of our research work feel less isolated in a vital period where they are strongly stressed, since for the first time they are interacting with the professional environment where their working life will develop in the future (Loiselle *et al*, 1998; Bloomfield, 2000; Romano, 2006). They think that in a face to face modality they can elaborate and work in groups better than virtually, nevertheless, the Practicum period is mainly of individual nature, in the way of “putting to test” or self assurance that the chosen profession has been the right one. The students have many problems with that, and to share these problems and to prove that other classmates also have their problems is something that –they consider- may be lost with the use of an Internet based platform. The pre-service teachers consider that it's more individual and impersonal (Bloomfield, 2000).

This may also be the result of the lack of training, the mistrust and insecurity regarding the work with ICT and/or the lack of resources (access to computers and Internet connections) in small rural locations. These



variables, beside the decrease of the number of the students who prefer virtual seminars, should be the center of attention of future studies.

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