

Virtual Learning Communities in the University Teaching of Physical Education

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Abstract. The appearance of the new technologies of the information has opened new expectations in the field of the higher education, which changes the student's relationship with the time, the space and the professor. A review of the recent literature reveals the different aspects that characterize a virtual community of learning but do not expose with clarity what factors are the determiners for the success in the top education. Tinto (1997) suggests that the relationship in the online classroom is significant for students and it is critical to learners' sense of scholarly belonging. Goodfellow (2003) says that, at least, five characteristics of online interaction have been identified in the literature as contributing to develop virtual communities. Through a review of recent literature it is proposed that teaching presence—viewed as the core roles of the online instructor is a promising mechanism for developing learning community in online environments. The purpose of the investigation has been to identify the key aspects to develop communities of learning based on the use of the technologies of the information and the communication (ICT) on physical education in higher education. After analyzing quantitatively and qualitatively the information, the results have allowed us to conclude that so that a community of learning based on the ICT can work of effective form, it is necessary to plan the educational process considering three aspects fundamental: its awaited organization, her interaction and results.

Keywords: Virtual learning communities, Physical education, Health.

1 Introduction

Nowadays the European and Spanish university are in a process of renewal that has a really sure future: by the year 2010 the European University will have to be adapted to the guidelines of the called European Space of Superior Teaching (ESST).

In the framework of the statement of Bologna and its development (<http://dfes.gov.uk/bologna>) the creation of an European system of transfers of credit (ECTS), the better quality of the teaching, the promotion of those aspects that promote the contribution among institutions and the integration of formation and research, are some of the important facts to get to the European Space.

We have the opinion that the uses of ICT are going to be, if it they are not already, one of the pillars in which to support this space of common formation. In fact, the

European Union was pointing out in 2000 that “every inhabitant has to have a <<digital culture>> and the basic aptitude to have bigger equality opportunities in a world that the digital communication is getting bigger and having more important”.

As a consequence of the <<digital culture>>, in the new model of the superior teaching that became as a consequence of this process we will have to develop strategies, mechanisms and resources so that the integration of said technologies in the college education been efficient and make a better teaching of quality.

So, the teachers will have to stimulate on the students a more active role, making new technologies oriented to get the participation of the students in the whole process of teaching learning.

This integration is going to carry us toward a conception of the university teaching in the following aiming years to the concepts “blended learning” and “virtual learning” because, progressively, in the university they live together the eyewitness model and the not eyewitness formation, and both are supported of growing form in the utilization of the technology. This combination has some demands and contributes some benefits to the educational process and to its protagonists.

The Physical Education (PE), as a scientific subject, it is being characterizes by a big capacity of evolution and innovation, even thought there was a diversity of the discipline that conform it. Nevertheless, since now the incorporation of the ICT to the university formation in PE is being resulting well scarcer. That is why we believe that it is necessary to analyze how we can work better to the ICT the processes of teaching learning of the university students in the subjects that we talk about above. This can carry us to devise extendible proposals to other areas of knowledge.

The shift to a new generation of learning involving collaborative group work as the main pedagogical method is emerging. There is a particular emphasis on community building in networked e-learning environments (Paloff & Pratt, 1999; McConnell, 2000; Rogers, 2000; Brown, 2001; Renninger, 2002).

Higher education are moving towards a pedagogical transition in which the collaborative work and the social learning are into the core. The term learning communities relate to the process of learning and the socialisation that serves to facilitate learning.

The associated pedagogical benefits emerging from the introduction of communities in higher education have been well documented. Learning communities have been linked with the achievement of learning outcomes (Gibbs, Angelides, & Michaelides, 2004) or with the promotion of critical thinking skills (Fink, 2003).

The five characteristics of online interaction that Goodfellow (2003) has identified in the literature as contributing to develop of virtual communities are: 'sense' of community, social networking, shared discourse, processes of social control, and trajectories of membership.

It is evident that the work in community or collaborative work contributes benefits in the learning process. Thus, to define a successful learning process based on a virtual community we will need to know the key factors.

Successful communities such as those described by Gongla and Rizzuto (2001) can be seen as embodying the three key characteristics: using good technology that can be accessed from a variety of locations, using a range of devices; the knowledge they produce, because it is subject to the scrutiny of so many experts and they are also decentralised because of the absence of managerial control.

2 The Work Context

We are in a context of eyewitness teaching there are degree students of two scientific areas: nursing and physical education.

With the students of nursing we worked about the environment of the following obligatory subjects: Medic Surgical Nursing II and IV. With the students of physical education we were working on the following obligatory subjects: Mobility and Theory and the History of the Physical Activity and also the Sport.

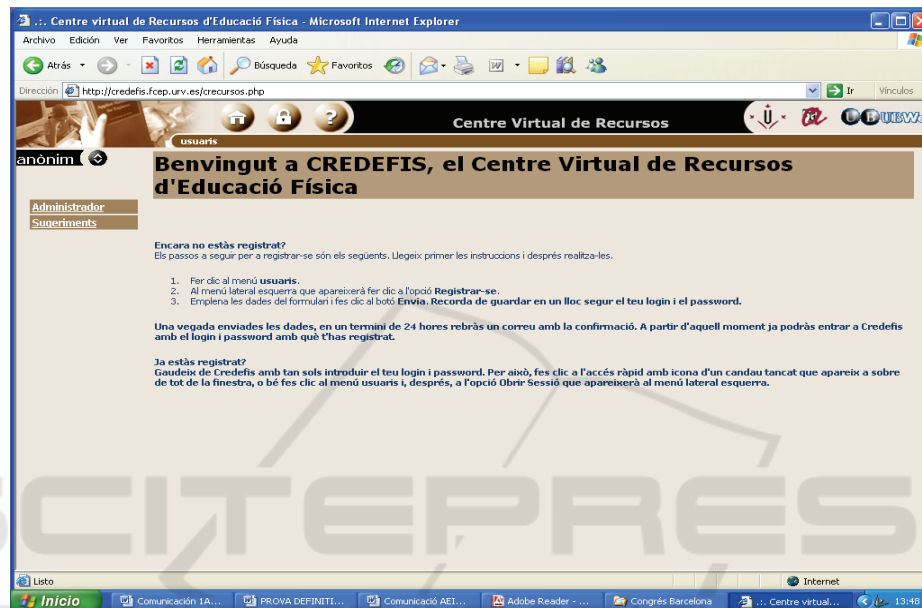


Fig. 1. Initial page of the CVR.

For the development of the experience we arranged a Centre of Virtual Resources (CVR) that is shared with all the subjects (<http://credefis.fcep.urv.es>), where the students can have the resources, the activities, and there are also forums for discussion. By this centre of resources is how the virtual communities of teaching that has been created for each of the projects have interacted, and also shared resources and results of the work of each community.

To each project there was associated a community of students and teachers and they were interacting in the centre of virtual resources. This centre has been working since 2004 as a result of another project of research that is why the structure and its operation were contrasted.

There were several reasons that motivated the type of work. On the one hand, it is a question of three different degrees but with common contents, which represent a topic centred community Polo (1998), besides being groups of students of similar characteristics. On the other hand the research team already was experienced at a previous. In addition, the geographical location was forcing to network.

3 Development of the Research

This experience has been carried out in the framework of a project of research in which two Spanish universities have participated: Lleida University (UDL) and Rovira Virgili University of Tarragona (URV). Of the first one have participated students and teachers of two different degrees: the first course of the degree of Physical Education and also from the third course of the degree of nursing. Of the second university they have participated students and professors of first course of the degree of specialists teachers in physical education for primary school. On the whole there have been working six professors and 142 students.

The purpose of the investigation has been to identify the key aspects to develop communities of learning based on the use of the technologies of the information and the communication on the university education of physical education.

They have been organized three projects with a common nucleus of work: the role of physical activity in the actual society and the comprehension of culture of body and health.

From here it was organized each project with a thematic and a methodology concrete and differentiated of work:

- Project 1. Pathologies and physical activities. By the use of learning based on problems (PBL PROBLEM BASED LEARNING), to the students were presented situation with serious pathologies that had to try to alleviate by the intervention with programs of physical activities, with the aim to improve the conditions of perception of the sick one and his conditions of his everyday life.

- Project 2. Body along history. Through the discussion of cases through forums about the role of the physical activity in the past and in the actual society.

- Project 3. Health and physical activity. Through 10 real cases with Light pathologies, the aim was the prescription of a program of physical activity that permits the increase of the quality of the life of the patient.

As an explanation of each project we present the following files:

Table 1. Description of the first project.

Project 1: Pathologies and physical activity
Participants: 2 professors and 14 students Name of the centre: Degree PE and School-nursing of UDL Subjects/blocs/: Mobility and Medico surgical Nursing 4. Themes: Amputation - Sclerosis Multiple - Traumatism encephalic cranium
Aims of the activity <ul style="list-style-type: none"> - Apply the centre virtual of resources in the process of teaching learning and in the subjects of physical education given in the university. - Promote the work collaborating, exchanging experiences and solving problems.
Competence developed through the activity: <ul style="list-style-type: none"> - Generate and exchange educational resources in electronic files like elements of support for the university auto learning in both disciplines. - Promote the work collaborating between the areas of Physical Activities and Sport and of nursing with the active participation of the professors and the students.

Table 1. Description of the first project. (cont.)

<p>Description of the activity: For each of the three themes it has been created a problem for its study. There were indicated questions that the students had to solve by interacting. And also students could visit patients with similar problems. They did a final project to explain how to treating this kind of illness from both areas.</p>
<p>Resources used to do the activity: electronic resources and communication tools of CRV, they make eyewitness meetings and also visiting patients with the same problems.</p>
<p>Criteria of evaluation: Work and final exposition. Monitoring in the different debates and looking for resources have served to have a better final mark based on the exposition of the final project as how to treat these kind of illnesses from both areas.</p>
<p>Time: First quartermaster of the academic course 2005-2006.</p>

Table 2. Description of the second project.

<p>Project 2: The body through history.</p>
<p>Participants: 2 professors and 85 students Name of the centres: Degree PE UDL and degree PE from de URV. Subjects/Blocs/: theory and history of the physical activity and sport (UDL) and theory and history of physic sportive activity (URV). Themes: Physical activity in: the first hominids, the prehistoric men, the first citizens (from Fluvial Citizens to the final of Roman Impair) the middle ages, the renaissance and the modern epoch (from the gymnastic schools to actuality)</p>
<p>Aims of the activity 1. Being capable to make an argument opinion and documented to express it in a format of forum of discussion on internet. 2. Be capable of discussing the opinions from others when we debate and formulating new ideas by forums where the students that participate from other universities.</p>
<p>Competences developed trough the activity: - Research and select sources of information to document the self opinion about concept and episodes historic. - Learning by autonomy to generate, justify and contrast with the self opinion.</p>
<p>Description of the activity: In parallel to the confession of the resources and the eyewitness classes each of the themes of history, it has been created some forums to expand and discuss, based on initial questions and minimum guidelines of participation.</p>
<p>Resources used to do the activities: Electronic resources of support and communication tools of CVR where the students learn to use by themselves in their times of study and their time to prepare the subject.</p>
<p>Criteria of evaluation: the persistence, the ponderation and to offer new ideas on the debates from the reading and the control of the whole thematic material and the interventions of the colleagues that also participate on it. The interventions have to be first of all argued (comment that it have a reason in which there is a debate of an opinion or a synthetic collect of ideas with a sentence at the end of the message) and after they have to be documented (argument with reference complete of what was mentioned).</p>
<p>Time: First quartermaster of academic course 2005-2006.</p>

Table 3. Description of the third project.

Project 3: Health and physic activity
<p>Participants: 2 professors and 43 students Name of the university: Degree PE and School- nursing of UDL Subjects/Blocs/: Theory and history of physic activity and nursing medico surgical 2. Themes: Sedentary and active hypertension, sedentary and active heartaches, artery pathological, sclerosis multiple, diabetes, obesity, bariatrica surgery, asthma and Epoch.</p>
<p>Aims of the activity - Being able to apply programs of intervention of physical activities for concrete collectives.</p>
<p>Competences developed trough the activity: - Create ways of reflexing working and thinking of critic analysis. - Use and incorporate in the good way in the activities of learning-teaching the technologies of the information and communication (ICT). - Work with collaboration to make solutions adapted to real solutions.</p>
<p>Description of the activity: Resolving a case from the making of an intervention program of physical activity for fifteen days. It is offered to the groups a description of the case and a dash of the steps that one need to its resolution and digital resources in CVR.</p>
<p>Resources used to do the activity: Electronic Resources and communication tools of CVR, eyewitness meeting and also optional visits to the patients.</p>
<p>Criteria of evaluation: Consistence and specific of the proposal of intervention for the increase of the life quality of the subject and the possibility of application and monitoring.</p>
<p>Time: Second quartermaster of the academic course 2005-2006</p>

From the methodology were generated this projects and to each one it was associated a community of work.

They were carried out a planning actions assembly of the work and monitoring of the same one and of their results. The tools used during the work of the three communities were the followings:

Table 4. Distribution of the tools of the monitoring and the evaluation.

BEGINNING	DURING	FINAL
INITIAL QUESTIONNER TO THE STUDENTS	FORUM OF DISSCUSSION OF THE STUDENTS	FINAL QUESTIONEER TO THE STUDENTS
COMMUNICATION BETWEEN THE PROFESSORS		
PARAMETERS FOR THE USE OF CVR (LOGS)		

The initial questioner was 15 questions and the final 18. The three questions more were about the feelings whit the experience, the community work and what the students had learnt. The initial questionnaire is shown on Figure 2.

For the descriptive analysis of the quantitative data of the questioners it has being using the program SSPS v.10.0. For the analysis of the forums, the communication between the professors and the open answers of the questioners it has being using the program NVIVO (version brought up to date of the software “Nudist”, tool for qualitative analysis of information). To this information an analysis of the statistical parameters of use has been added that collected the own one CVR.

We only realize a descriptive analysis because we do not try to seek for any correlation between variables, only to establish the profile of the members of the community. With the questionnaires we identify 5 types of variables: availability of resources ICT and connectivity, the use of the ICT, degree of control of the computer, training level in ICT and attitude towards the ICT.

4 Results

The assembly of the results we have grouped them in three categories for its interpretation:

1- Those that permit us to establish a profile of the members of the community in relation to the ICT.

With the descriptive analysis of the variables we see that, in general, the level of use of the ICT is high, as their formation. The students use the ICT as tool of communication and work. We meet a few students' communities with a high level of use and experience with the ICT.

From the initial to the final questioners (the initial questionnaire had a total of 15 items and the final one 18) we could get information about, for example, the evolution of the control of the computers by the students as a consequence of their experience or the evolution of the level of formation in ICT in the students.

QÜESTIONARI INICIAL

Benvolgut/da, Estem realitzant una investigació sobre les tecnologies de la comunicació i la informació (TIC) aplicades a la docència universitària. Per aquest motiu et demanem que tinguis l'amabilitat de respondre amb el màxim interès i sinceritat aquest qüestionari **anònim**.

Indicacions per a respondre el qüestionari:

1. La informació que ens aporteu és confidencial i només serà utilitzada en aquesta recerca.
2. **NO ÉS UN EXAMEN**. No hi ha respostes "correctes" o "incorrectes". Us agraïm la màxima sinceritat.
3. Si teniu qualsevol dubte o no disposeu d'informació suficient podeu dirigir-vos a l'enquestador/a
4. Al final de cada bloc de preguntes i del qüestionari, trobareu un apartat d'observacions.

A. Dades identificació

1. **Edat:**
2. **Sexe:** Home Dona
3. **Ensenyament:** Alumnes Diplomatura MEF Alumnes Llicenciatura CAFE Altres.....
4. **Universitat:** URV UB UdL

B. Disponibilitat de Recursos TIC i connectivitat

Resposta: senyala amb una X l'opció que correspongui.

5. **Per estudiar has tingut que canviar entre setmana la teva residència familiar?**

Sí No

6. **Tens ordinador en el teu lloc d'estudi habitual d'entre setmana?**

Sí No En cas que la teva resposta hagi estat **afirmativa**, des de fa quant de temps?.....

En cas que la teva resposta hagi estat **negativa**, quin/s ordinador/s utilitzes per a realitzar els treballs universitaris?

Si és el cas, pots marcar més d'una opció.

Ordinador de la facultat Ordinador d'amics/gues
 Ordinador d'un "Telecentre" Cibercafé Altres (Quins).....

7. **Tens connexió a internet des del lloc d'estudi habitual?**

Sí No En cas que la teva resposta hagi estat **afirmativa**, des de fa quant de temps?.....

En cas que la teva resposta hagi estat **negativa**, des d'on t'acostumes a connectar a internet?

Ordinador de la facultat Ordinador d'amics/gues
 Ordinador d'un "Telecentre" Cibercafé Altres (Quins).....

Observacions:.....

C. Ús les TIC

Resposta: **1 totalment en desacord, 6 totalment d'acord** i en blanc si no tens informació suficient.

8. Normalment utilitzes ordinador per a:	1	2	3	4	5	6
Realitzar activitats lúdiques i d'oci (jugar, xatejar,...)						
Realitzar activitats acadèmiques i formatives (fer treballs, buscar informació,...)						
Realitzar activitats laborals						
Realitzar activitats de gestió i administració (agenda,...)						
Com a eina de comunicació (internet)						
Autoformació/Autoaprenentatge						
Altres activitats: Quines?						

Observacions:.....

9. Valora els següents sistemes / programes /aplicacions informàtiques, en funció de:

- La **freqüència** amb que els utilitzes
- La **utilitat** que tenen per a la teva activitat com a estudiant (encara que no els facis servir habitualment)
- El teu nivell de **domini/competència**

Exemple de resposta: Si et preguntem pels transport utilitzats per a anar a la facultat i el teu cas es que; no acostumes a anar-hi amb cotxe particular, però creus que és un mitjà de transport molt útil, i fa poc temps que tens el carnet, la teva valoració podria ser: **freqüència 2, utilitat 6 i domini 3.**

	Freqüència ús						utilitat						Domini					
	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6
Autoformació / Autoaprenentatge																		
Bases de dades ("Access", "File-Maker")																		
Consultar i enviar correus electrònics																		
Edició de pàgines web																		
Editor de presentacions tipus "Power Point"																		
Fulls de càlcul ("Excel", "Lotus",...)																		
Fòrums de debat																		
Gestió i administració																		

Fig.2. Initial questionnaire.

Table 5. Comparison of the control of computers by the students of the project 2.

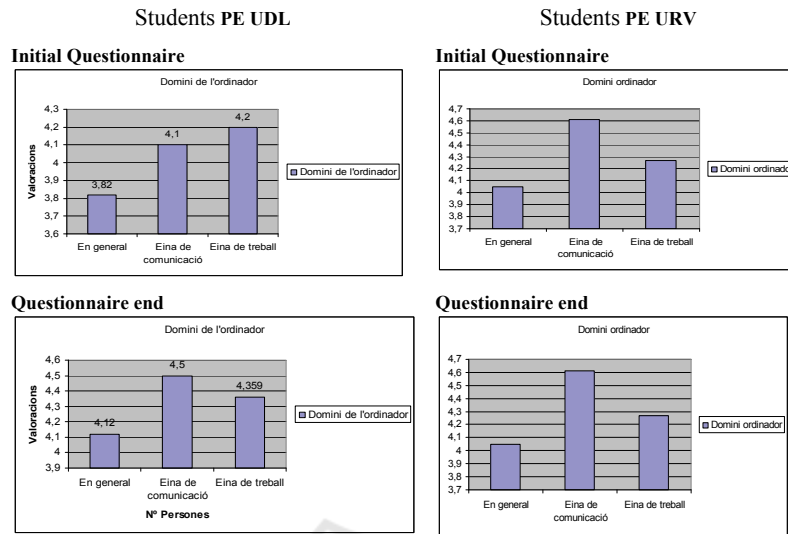
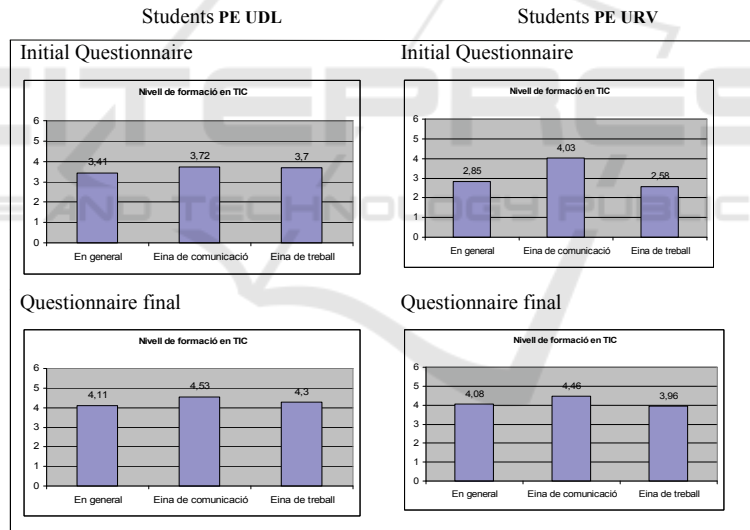


Table 6. Comparison of the evolution of the level of formation in ICT in the students of project 3.



In addition to they have gathered data on the type of use of the ICT on the part of the students, their availability of computer and connection to Internet, its initial formation in ICT etc. As far as the professors we can say that it has evolved towards a new profile, since the integration of the health and the physical education have made possible the interchange of experiences. This interrelation has impelled one more a present conception of the physical education.

2- Those that permit us analyse the organization and the interaction between the members on the communities.

The qualitative analysis has permitted us to verify some improvements in the educational process in different levels:

- An environment of new auto learning. The volume of communicative exchanges and of resources that has facilitated the CVR has prompted a kind of evaluation continued and formative what has encourage the auto learning.
- Information exchange possibilities. The digital patrimony that we created have a big base of specific information about the physical activity and health that they will enjoy, in a future, excellent students, experts and any professional.
- Bigger autonomy in the learning. The students have participated in a work between different qualifications and in a communicative exchange from the reflection thematic and new methodological strategies.
- Significant formation. The study of cases and resolving problems have approached us to the professional world by the identification of problems, the search for resources and the application of solutions like intervention strategies.

Table 7. Participation and readings in forums of project 3.

Name of the forum	Answers	Readings
Cas 1: hypertense ex sportsman	100	699
Cas 2: sedentary hypertense woman	29	250
Cas 3: sedentary cardiologist woman	60	240
Cas 4: cardiologist ex sportsman	35	350
Cas 5: sedentary man with pathology in the arteries	52	430
Cas 6: sport woman with multiple sclerosis	120	750
Cas 7: diabetic adolescent who does sport	55	450
Cas 8: obese patient who has have an operation	150	700
Cas 9: asthmatic man who does sport	75	540
Cas 10: asthmatic man who does not sport	7	100
Cas 11: sedentary woman with EPOC	35	230

As interaction example we can say that like average, each user registered in the CRV has made more than 150 accesses to he himself during the period of work. As example we can see the interventions in the forums in project 3.

3- Those that permit us analyze the productivity of each community.

As a result of the work of the three communities they have been added to the CRV more than 1400 electronics resources and they have started up more than 15 forums of discussion on diverse subjects.

Students said that this experience of collaborative work was very useful because they could work without space and temporal limits, besides with the confidence of an authentic collaborative learning.

Thus, we can say that the experience has permitted us:

- A high active participation of the students involved in the experience.
- A high motivation towards the search and selection of information.
- Permanent discussion to develop practical works.

- Concreteness in the presentation of projects.
- Personalization and bigger implication in the process learning.
- Significant formation for the professionals.
- Evaluation continued and formative into university.
- Interdisciplinary curriculum.

5 Conclusions

As for the creation of communities of learning based on the use of ICT, to obtain it with efficiency, some of the fundamental aspects that we can conclude are:

- Talking about the environment of interaction we think that it is really important the use of platforms that permit an easy communication, the immediate availability of all kinds of resources and the monitoring of the activity.
- Talking about the organization of the community, we consider that would be convenient to have educational guides that structure the work, besides trying to guarantee a level of control of the ICT on the part of the members of the community.
- Talking about productivity, we think that it is necessary to centre very well the thematic of the work promoting the specialization of each community and trying to get the maximum relation of the projects of work with its application in the professional activity of the members. For that it is necessary a very clear working plan.

Therefore, we agree with the idea that the teachers will have to stimulate on the students a more active role, making new technologies oriented to get the participation of the students in the whole process of teaching learning. The use of ICT is a way for that. However, we consider that it is necessary a control and the planning of the work of the community for effective results.

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