Full Length Research Paper

Teaching and learning in the virtual campus: The case of the University of Barcelona

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This article is based on a research project aimed at analysing the teaching and learning models explicit and implicit in the different uses of e-learning platforms. From qualitative analysis of the interview with the coordinator of the Virtual Campus of the University of Barcelona (VC-UB) and the focus group with the 8 lecturers, emerged both the explicit and implicit teaching models of the e-learning platform and the possibilities and limitations of its implementation. The descriptive analysis of quantitative data collected through an online questionnaire has enabled us to explore how teachers use the e-learning platform; the strategies implemented and the pedagogical added value. This research revealed that despite the UB's careful selection of the e-learning platform, in which there is an underlying socio-constructivist perspective of learning, the evolution towards this conception of teaching and learning, which is neither uniform nor widely extended, is not due exclusively to the use of technology. In the teachers ability to make the most of technology in their teaching, membership or otherwise of teaching innovation groups has an important bearing; or their membership or otherwise of departments in which innovation is encouraged and valued and the creation of teaching teams promoted.

Key words: E-learning; cooperative/collaborative learning; improving classroom teaching; pedagogical issues; teaching/learning strategies.

INTRODUCTION

The new scenario of the knowledge society poses a series of challenges to educational systems and the teaching staff, among which features the need to educate competent citizens who are digitally capable of decoding and giving new meaning to information and transforming it into knowledge (Devlin, 1999; Hargreaves, 2003). This situation calls for the development of new ways of teaching and learning, focused on the student and in the collaborative and shared construction of their learning (Hanna and Associates, 2000; Katz, 2008). Before these challenges, we must think about whether Information and Communication Technologies (ICT), and especially the virtual teaching and learning environments, can be the providers of the processes of change that are needed (Akalpler, 2009). This new situation does not only mean

"transforming access to knowledge, but may also be influencing the balance of power between academic and student in knowledge production and use" (Hanson, 2009: 554).

Tackling these issues seems particularly important, mainly for two different reasons. The first involves "the changing nature of academic identities" (Hanson, 2009: 553) found in the process of implementing e-learning in higher education. The second relates to the claim that "coursework in technology and telecommunication is not nearly as important as embedding technology and telecommunication use throughout the university curriculum in and out of education courses" (Clift, 2001: 47).

In this context, this article shows the results of research into the teaching and learning models explicit and implicit in the different uses of the Virtual Campus of the University of Barcelona (VC-UB), built on the *Moodle* e-learning platform. This study forms part of a wider-ranging project, in which nine Spanish universities have

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taken part. The paper explores to what extent, in the specific case of the University of Barcelona, the use of an e-learning platform by a group of early adopters really serves to implement a teaching and learning process more in line with the objectives of the European Space for Higher Education (ESHE). The main aim of the ESHE, implemented as a consequence of the Bologna declaration, is to adopt a system of easily readable and comparable degrees, also through the implementation of the Diploma Supplement, in order to promote European citizen employability and the international competitiveness of the European higher education system. The construction on this new setting for European universities also entails and here is where the focus of our research is placed, a fundamental shift from teacher-centred to student-centred teaching and learning models; and from the idea of *knowing what*, to the notion of *knowing how and why*. For this reason we have analysed how the e-learning platform is used and which teaching and learning models are implicit in the different uses of the platform.

Virtual campus of the University of Barcelona

Virtual Learning Environments (VLE) is digital platforms which aim to facilitate student-teacher interaction and student performance follow-up, enabling a more meaningful assessment process. Nevertheless, the mere use of this tool does not mean that it results in an innovative and improved educational process, as it can also be used as a digital container.

The implementation of the VC-UB, based on *Moodle*, is intended to provide support to the on-site and semi on-site teaching of the UB. With this initiative, the UB aims to promote the adaptation of teaching and learning to the guidelines of the European Space for Higher Education (ESHE), focusing attention on the learner and the learning process.

The dynamic of the VC-UB is developed through virtual classrooms, where it is possible to publish teaching materials, collaborative work between lecturers and students, communication through distribution lists, forums, chats, etc., continuous assessment, qualification by the teachers and the control of these activities through authenticated sessions.

Access is available 24 h a day, 365 days a year, so that subject contents can be consulted, projects sent, self-assessment exercises done, qualifications made, contact with lecturers and other students maintained, e-mail, news, upcoming events received, etc. The VC-UB enables the use of multimedia documents, the reproduction of video and audio in real time, the creation of web resources, the edition of all the materials in HTML and participation in forums. Moreover, it provides databases, three different formats of wiki and LaTeX (for mathematical and chemical formulas) and Jmol filters (for visualising molecules). There are also plans to include

AJAX technology to improve the user interfaces.

The VC-UB uses the *Moodle* free software application as a nucleus, adapted to communicate with the other management systems of the UB (enrolment, academic organisational plan and web), around which are built the tools necessary to respond to the concerns regarding teaching innovation.

As regards the teaching and learning model, the VC-UB provides tools that enable the teaching staff to design activities for the students to be done online or offline, with the aim of strengthening knowledge acquisition and at the same time, favouring independent learning. This system also provides information about the student's activities, assessment tools and qualification, performed by the teachers or between peers and resources for interaction between the teachers and the students while the tasks are being carried out. All this guarantees a support more befitting to the requirements of continuous assessment. The characteristics of the VC-UB facilitate and provide work with different groups of enrolled students, as well as enabling the teaching teams to share resources and organise themselves more efficiently and quickly.

The features and functions of the VC-UB as a whole, according to the heads of teaching policy at the UB, are made up of fundamental tools for encouraging a perspective of constructivist teaching and learning, in line with the new university model scheduled to be put into practice.

METHODOLOGY

To delve into how the VC-UB is used and which teaching and learning models are implicit in the different uses of the e-learning platform, an empirical study was carried out. Evidence for the empirical study was based on an online questionnaire, an interview with the coordinator of the VC-UB and a focus group (Reinharz, 1992) with 8 junior and senior lecturers representative of the type of pioneering teachers who use this type of teaching and learning environment. The use of complementary methods (Green et al., 2006) had the objective of achieving a solid view of the studied phenomenon and significant progress towards an understanding of the elements that boost or inhibit the transformation of teaching with the use of ICT.

The online questionnaire was aimed at all the teaching staff that had used the VC-UB in the pilot test, which meant a population of 248 users. All of them were sent a letter of invitation, which explained to them the objectives of the project and showed them how to take part in the survey online. More than 26% of the teaching staff responded to our request. The total final sample was made up of 65 lecturers. Regarding age, almost two-thirds of those who answered were aged less than 50, which is coherent with the professional development needs and predisposition of the younger lecturers to explore new teaching environments and teaching and learning methodology.

The focus group was made up of 3 male and 5 female lecturers, from seven different areas of knowledge (Biology, Law, Philology, Sociology, Pedagogy, Mathematics and Physical Education), who had used the VC-UB during the above-mentioned pilot test. Three of them belonged to recognised teaching innovation groups. Among the teaching staff participating in the focus group were what scholars of change and innovation call the early adopters or

pioneers group, made up of concerned and curious people, who enjoy their work and look into how they can improve it or discover and use new methods and tools available.

The use of these three research methods has involved different strategies to analyse the collected data. From the qualitative analysis of the interview with the coordinator of the VC-UB and the focus group with the 8 lecturers emerged both the explicit and implicit teaching models of the e-learning platform and the possibilities and limitations of its implementation in an institution with a deeply-established teaching culture. On the other hand, the descriptive analysis of the quantitative data has enabled us to explore how teachers use the e-learning platform; the strategies implemented and the pedagogical added value.

RESULTS

The possibilities and limitations of the e-learning platform of the VC-UB in practice

For the coordinator of the VC-UB "the platform does not contain an explicit model of teaching and learning, but there is a set of objectives the UB wants to achieve. Some of them are a consequence of the ESHE; others are a part of the usual process of rationalisation and optimisation of any university".

Regarding the ESHE, for her, "people talk about a certain convergence of objectives (…) student-centred models, favouring collaborative work…" This is to say, educational perspectives that foster student participation, autonomy and responsibility for their own learning and which allow them to develop and acquire the kind of knowledge, skills and predispositions that will enable their full participation as engaged citizens in complex societies as well as their access to the labour market. This is why the UB has chosen *Moodle* as a platform, because of the claim made by different authors of its capability to support a socio-constructivist notion of teaching and learning (Marquis, 2008; Griffin, 2006).

During the interview, the coordinator remarked that the implementation of the VC-UB is a logical consequence of the steady process the UB has been developing over recent years to promote innovation and improvement in teaching practice. Since the 1980s, the UB has promoted and supported different technology-driven innovative teaching projects coordinated by the Computing Centre. The development of this process has involved providing resources as well as promoting coordination and collaboration among teachers with the aim of optimising the planning and implementation of teaching practice.

Among the positive effects for improving the quality of teaching, the coordinator of the VC-UB highlights the transparency of the pedagogic proposals underlying the chosen e-learning platform (*Moodle*). In the on-site system, for a student who does not attend a class or knows someone who does, it is practically impossible to know how the teaching is organised and what the proposed learning experiences are. However, in virtual teaching, if the courses are left open, the capacity of

students' choice is greater. She also pointed out that both the ESHE process and the implicit pedagogic conceptions of the VC-UB involve an important change in the way the actual teaching role is conceived, the knowledge is represented, accessed and applied, the resources are used, and the relationship with the student and the assessment are envisioned. To deal with this change the teachers must undertake a real in-depth process of transformation and professional development, to a greater or lesser extent, according to each teacher's teaching career.

As regards the professional development and support for the teachers, not only in relation to the technical use of the VC-UB, but also, and above all, to the pedagogical aspects, the coordinator of the VC-UB considers that the professional development given in the UB attempts to deal with both aspects, while recognising the basically three difficulties and issues involved. The first is related to the traditional rejection by the Spanish university of everything that is connected with *pedagogy* (teaching methods). This situation is exemplified when she relates her own experience. "When I go to the departments I find this resistance: -'Listen! Please, do not bring educationalists here!' (…) 'No, I'm not an educationalist', but I can express an educational vein when I ask myself: what is our common interest in this situation?"

The second concerns the dispute about whether the professional development of the teachers has to be centred on handling the technical aspects of the VC-UB or to consider, at the same time, the pedagogic implications of its use (Guasch et al., 2010). The third is about the need to convince the teachers that the new tool will represent a clear improvement in teaching work, without this representing a major investment in time, but rather the opposite. For the coordinator of the VC-UB, at present the UB, as in the majority of universities, is failing to deal with the three issues simultaneously.

The view of the UB teachers that answered the questionnaire

The lecturers who answered the questionnaire (Figure 1) pointed out that they use the VC-UB mainly to provide the students with information and organise the information and resources better. To a lesser extent, they use it to favour the student's autonomy, set problems, consolidate concepts, present notes on the material and control the handing-in of projects. In an open item levelled as "other", we found that some teachers also use the e-learning platform for teaching assessment and/or correction criteria; self-assessment and general assessment activities.

This means that the teaching staff surveyed used the platform, firstly, to provide students with information. In a saturated world in which there is too much information and lack of meaning, the selection of the fundamental information sources in a setting of knowledge seems to
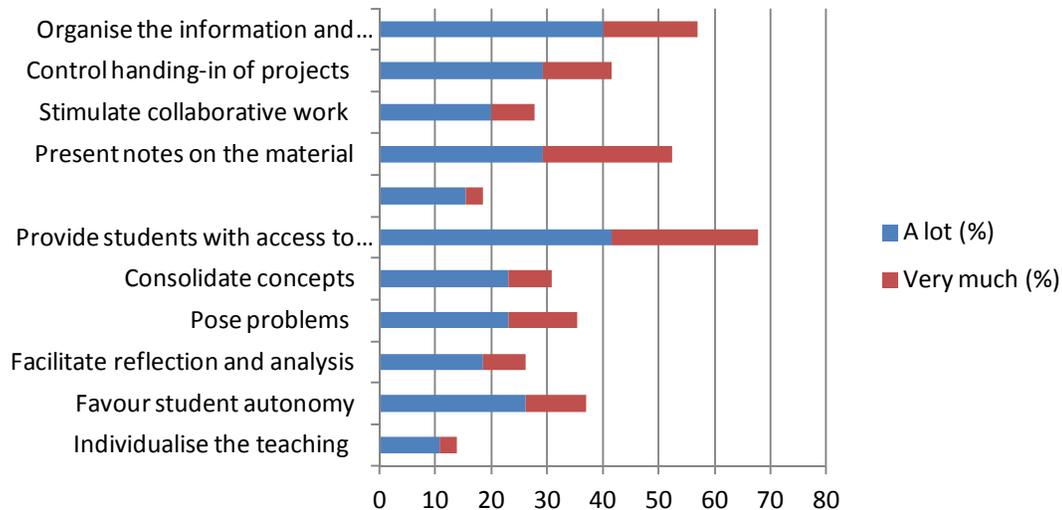
Figure 1. Use of the e-learning platform of the CV-UB.

be essential; but on condition that it is accompanied by pedagogic proposals that provide the student with meaning and the construction of complex understandings of the subjects studied. The second main use corresponds to organising the information and resources in a better way, in close relation to the teaching proposals deriving from the principles ruling the construction of the European Space for Higher Education.

Summarising, even if it is possible to see a timid transformation of the teaching models in the way teachers use the e-learning platform, they still seem convinced that "teaching is telling, learning is listening, and knowledge is what is in books" (Cuban, 1993: 27). This kind of teaching model generally assumes that knowledge is a collection of facts about the world and procedures for how to solve problems, that the goal of education is to get these facts and procedures into the student's head, that teachers know these facts and procedures, and their job is to transmit them to students, and that the way to test students is to see how many of these facts and procedures they have acquired (Sawyer, 2008).

As reflected in Figure 2, the most-used teaching strategies in the e-learning platform were: "individual work"; "working in small groups"; "case studies" and "reading and commenting on texts". The following were underlined with less frequency: workshops; simulations; problem-based learning; and project work. This use of the platform gives continuity to the teaching method still dominant in the university and corroborates the results of other studies about the use of digital technologies. These studies have identified a series of stages that range from the adaptation of the technology to teaching, to the in-depth transformation -to a greater or lesser extent- of the teaching as one reflects on its processes, and the possibilities of the technology are also explored (Law et

al., 2008).

If the teaching is predominantly teacher and text-centred, it is not surprising to find among the main strategies, "individual work" and "reading and commenting on text". However, the use of strategies such as "working in small groups" or "case studies" points out that, as shown by other studies related to the use of ICT in education (Becta, 2006), teachers tend to follow a common pattern. First, they use this technology to implement the teaching strategies they regularly use. Then they try to improve it and finally, when they feel more confident, start introducing innovations.

Regarding their experience with the e-learning platform, as reflected in Figure 3, teachers consider that its use has enabled them to reflect on their teaching. It has contributed to changing their role as lecturers, has enabled them to modify their teaching strategies and, to a lesser extent, has improved the students' learning process. These answers are in line with the reflections of the teachers who took part in the focus group, analysed in the next section.

Finally, it should be noted that not everyone who answered the questionnaire replied to all the items that made up the different questions. This can be attributed to the lack of experience and custom of Spanish academics of reflecting on their teaching work. Traditionally, Spanish university teachers were expected *to teach their subject*. Now they are supposed *to teach to subjects*. And this makes a big difference.

The possibilities and limitations of the e-learning platform of the VC-UB from the actual experience

The lecturers who took part in the focus group gave a very positive assessment of the opportunity this activity afforded them to speak of their experience in the use of
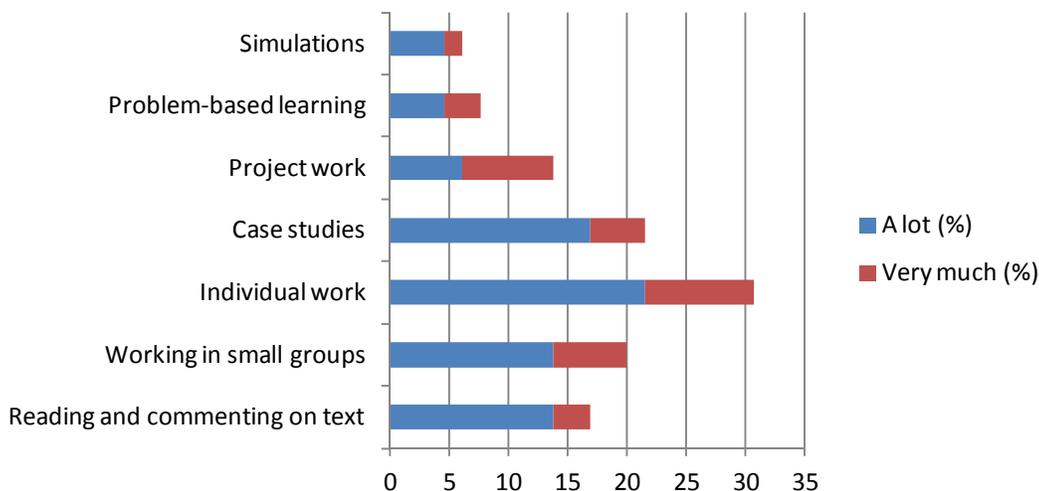
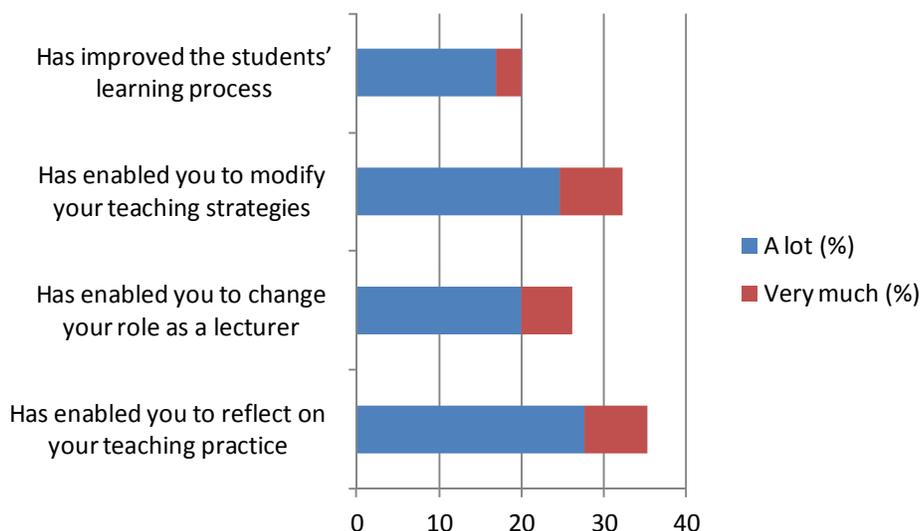**Figure 2**. Teaching strategies used of the CV-UB.

Figure 3. Possibilities the e-learning platform of the CV-UB.

the VC-UB and share their reflections. Teachers usually feel different degrees of anxiety on starting to use new information and communication technologies (Russell and Bradley, 1997). This anxiety may increase at a time of change such as that being experienced by the UB which is trying to transform the teaching role itself, the way of understanding teaching, of conceiving knowledge, relating to students and thinking about assessment. As a result, the very method used to undertake this educational research has had a beneficial effect for those involved in it.

"It has been very good for me to talk with others and see what they think." (Sociology lecturer).

"I think exactly the same. Coming to this meeting has been very positive because you exchange experiences,

you hear other things and at a time when the majority of us are beginners with technology, it is very useful." (Biology lecturer).

The analysis of the contributions confirms the findings of the studies about the use of technological tools, from the textbook to the latest development in digital technology, to corroborating the existence of a pattern in the way of using the resources in the teaching and learning process. Initially, it is not usually the resource that imposes on the educational model, but the educational model –based on the teachers' conception about what they believe teaching and learning should be and their repertoire of teaching strategies– which shapes the use of the resource (Cuban, 2001). As the technology is mastered and one reflects on the possibilities it offers,

the teachers can broaden and deeply transform their conceptions about teaching and move forward in other teaching roles and models (Becta, 2006).

All the lecturers taking part in the focus group agreed that the use of the VC-UB meant a change to them in the way they understood teaching and learning. They recognised that the tool led them to be able to undertake activities unthinkable for them in on-site teaching, although they agreed that the key question was teaching methodology.

"I think that it is true that the methodology you use is very closely linked in this case to the platform. Because what we have done is replace an analogical learning portfolio with a virtual one. This is why we have adapted so well to all the tasks involved in the VC-UB. In any case, what, I believe, does promote this type of e-learning platform is more collaborative work with the students" (Law lecturer).

"What marks you out is the methodology, but, you have just said the same, it is not only the methodology, but the tool you have that provides a different view" (Physical Education lecturer).

"It is indeed true that all these types of initiatives, deep down, make a clear demand for you to change the methodology. But right now!" (Philology lecturer).

The use of the VC-UB has had an impact on teachers' own learning, not only in terms of the technical knowledge needed to use the platform, but also in the development of content-management strategies and teaching activities. This impact has even revealed situations that have always been there but had never been made evident.

"The virtual campus allows me to organise things in a different way; it makes me think of things in a more direct manner. I found myself in a strange situation because when I began to explore everything, I thought of things that perhaps, at the time, had I not been working with the platform, would never have occurred to me" (Pedagogy lecturer).

The teachers that have begun using the VC-UB individually and at their own initiative, without an explicit analysis of their teaching and learning models, have gradually experienced changes as they discovered the possibilities and limitations of the tool.

"Naturally, the fact of using these tools makes me change my teaching strategies. This is because, for example, the majority of us began to use the VC-UB as if it were an electronic dossier, we placed information, and later we realised that you can do more things, and I wanted to do more but can't because in reality the tool does not let you do some things or is not as adaptable as you would like" (Physical Education lecturer).

They have also thought of the use of the VC-UB as a real possibility for learning and an excellent educational benchmark where one can test different teaching modalities and set current higher education challenges.

"I have spent a lot of hours on it, because I have thrown myself into trying everything, I have tried everything. First, because by trying and trying you learn about the possibilities. [...] This is to say, it helps you to lose your fear. You have to make decisions, you have to take risks and learn, and it's not so difficult." (Pedagogy lecturer).

"I had the impression that as it was, the situation was unbearable... Either you had to introduce some change or it would collapse, at least in my environment, I do not know about other programmes." (Philology lecturer).

Regarding the interaction with students, teachers considered it has increased in a positive manner and that it also opens new possibilities.

"What this kind of platform fosters is more collaborative work among students." (Law lecturer).

"The chat was great, I even printed it because it let me see who my students were, when usually we don't know." (Biology lecturer).

"Some learning tasks can be assessed among students themselves." (Pedagogy lecturer).

The follow-up or the learning activities implemented in the platform have given teachers a deeper knowledge of their students. On one hand, students have developed a renewed interest in tutorials.

"The platform can help in some way, especially by letting you know what students do. Yes, because digital repositories or printed dossiers do not give you this control." (Biology lecturer).

"There was a moment when students did not come for tutorials; they did not come to ask questions. Now that they have the impression that there is direct communication with me, when I have a tutorial they come. It's unusual the day they do not come, at least to ask something." (Sociology lecturer).

At this point we should highlight the fact that the differences found between the participants in the focus group and which have conditioned and/or facilitated the use of the VC-UB have been:

The previous use of electronic dossiers (an application developed by the Learning Resources and Research Centre of the UB);
The level of digital literacy;
The membership or otherwise of teaching innovation groups or departments that promote innovation and the use of technology.

These results are in tune with the suggestion of Unwin (2007) about the importance of engaging in professional learning communities with an educational perspective on the use of ICT and the participation of ICT *enthusiasts*, as a way of fostering the capacity and predisposition of higher education teachers to positively, collaboratively and critically consider the use of learning technologies.

Regarding this point, the contribution of the Philology lecturer, who admitted to belonging to a "department that is very reticent towards technological innovation", is of special relevance. In her opinion this refusal to introduce

any change in the teaching process "is surely because [innovation] is mistaken for trivialisation". This lecturer had the impression of having discovered a world full of possibilities, among which she includes the renewed interest of her students for on-site classes. For her it was particularly important to have authorised herself, without the support her colleagues, to confront the problem of teaching humanities subjects in the university world of today where "you get the feeling that it is still like the 19th century and that the latest technology is the blackboard" (Philology lecturer).

What teaching and learning models emerge?

The fact that the e-learning platform chosen for the VC-UB has been developed from a socio-constructivist conception does not imply a unity of criteria and action for undertaking the teaching. As we have pointed out, teachers adapt the tools to their way of understanding teaching and at the same time, their teaching has being enriched by the pedagogic exploration of the possibilities of access to information and enhance the collaboration between them and the students.

   In the practical experience of using this e-leaning platform, one can discern an evolution of the lecturer-centred teaching and learning models, from a factual and conceptual notion of knowledge (know what) and a sole assessment through an examination. For those student and collaboration-centred models, a more performance-based, discursive and applicative vision of knowledge (know how) and an ongoing assessment aimed not only at accreditation but also at guiding the learning process itself. However, as some of the participants in this study pointed out, this evolution, which is neither homogenous nor widely extended, is not due exclusively to the e-learning platform. We could say that perhaps the use of this extended teaching and learning environment is due to the desire and need of the University of Barcelona and the teaching staff at least a part of it, to put "more authentic" forms of learning into practice (Herrington and Herrington, 2006). This means teaching and learning modes that involve and commit both the students and teachers, although the path to achieve this significant change seems neither easy and nor will it be able to be taken without a deep transformation of the institutional culture, the power relations and the very role of the university in current society.

   Although the reflections and experiences of the lecturers varied as regards the ways of using the platform, all of them coincided in showing their satisfaction with it. One of the outstanding points though not always explicit in the discourse was the profitability attained in the long term of the work undertaken on the platform. Everyone agreed that the use of the VC-UB involves much more work than traditional on-site teaching. However, some pointed out that this initial work,

over time, tends to become lighter, enabling, as well as its profitability, the creativity of the lecturer. Other benefits observed by the lecturers were:

1. A greater knowledge of their students provided by monitoring the activities undertaken on the platform,
2. The activation of the tutorials.
3. The optimisation of teaching time, since activities that before were done in class (see videos, documents, self-assessments, etc.) are now hung on the platform and class time is used for discussion and/or comments,
4. The improvement in their own learning, not only in terms of technical knowledge (for the use of the platform) but also in the development of strategies for managing the contents and activities ("survival strategies", "it makes me think about doing new things") until seeing for themselves situations that have always existed but which did not seem so obvious (for example the assessment), and;
5. Better knowledge of themselves as teachers.

DISCUSSION, CONCLUSION AND SUGGESTIONS

The implementation of the VC-UB and the choice of the *Moodle* e-learning platform for its development seem to be a coherent consequence of the determination of the UB to progress towards three priority objectives:

1. Working continuously and with sustainability for the improvement in quality of teaching and learning;
2. Using the potential of the tools deriving from the applications of information and communication technologies and
3) Achieving the objectives deriving from the construction of the ESHE, in relation to the teaching and learning models with the highest possible degree of quality.

The choice of the e-learning platform (*Moodle*) has been made from the point of view of the educational philosophy on which this tool is based: socio-constructivism, with the consideration that this is the pedagogic perspective that best responds to the objectives established by the Academic-teaching Project, which are closely linked to the Institutional Teaching Policy Project of the UB. From the evidence provided by our study, one can see a progression from:

Lecturer-centred teaching and learning models, based on a factual and conceptual view of knowledge (know what) and a final conception of assessment through an examination.

Towards:

Student and collaboration-centred models, based on a more performance-based, discursive and applicative vision of knowledge (know how) and an ongoing

assessment aimed not only at accreditation but also at guiding the learning process itself. However, this development which is neither homogenous nor widely extended is not due exclusively to the use of *Moodle*. The factors that determine this transformation are in relation to the teaching career of the teaching staff that uses the VC-UB. In the teachers ability to make the most of technology in their teaching, membership or otherwise of teaching innovation groups has an important bearing; as does their membership or otherwise to departments in which innovation is encouraged and valued and the creation of teaching teams promoted.

In this early stage of implementation of the VC-UB, it is possible to detect the enthusiasm and involvement of the teaching staff who have voluntarily taken part in the pilot experience. However, the target set by the UB is that in the short term, its more than 4,000 lecturers and 70,000 students join the VC-UB. This volume of use sets big challenges if what we want is for the VC-UB to go beyond being just a repository of teaching notes. Promoting teaching and learning based on socio-constructivist principles in an institution marked by a several hundred-year-old culture of transmission and repetition/recreation of knowledge involves setting into motion, a more global plan and agreed mechanism. This means a device that enables the leap to be made from a group of pioneering and enthusiastic teachers who will innovate and try to improve their teaching in any context, to the inclusion of all or a large part of the teaching staff. In brief, according to the coordinator of the VC-UB, it would mean looking at "how to broaden the group of 'the ten out of ten people' to the nines, eights, sevens, sixes…" Because as pointed out by Rogers (2003), Müller et al. (2007), among others, the big challenge with all innovative initiatives is how to extend the innovation, in this case to the rest of the teaching staff and how to make it sustainable.

The process of achieving more student-centred teaching, more concerned with the meaning of knowledge in current society and its role in formative processes, more connected to the student's needs and the world in which they live, and more oriented to assessment as learning than to assessment of the learning, does not appear easy (OECD, 2010; Laurillard, 2011). Following this process involves thinking of teaching as a collaborative and interactive relationship that seeks to develop the authorship of the students and listening to their voice. In this type of teaching, teachers that have been socialised and professionalised in an analogical context have to familiarise themselves with the digital world. It thus seems fundamental to attend to their formative needs, to give them support and pedagogical and technical assessment and above all, the dedication time required. Otherwise frustration, too much pressure and tiredness will become time bombs that will make ICT-driven innovation unsustainable.

Another fundamental element in the teaching-learning equation from a socio-constructivist perspective and from

the objectives of the ESHE is the role of the students. It seems obvious that these perspectives on teaching and learning and the use of e-learning platforms, as it does for the teachers, represent a fundamental transformation for them. The change from being considered "containers of information", of representing a passive role to produce "results" previewed by teachers; to performing a role of involvement, authorship and taking responsibility for their own learning process will not be easy. It is a situation that as pointed out by a study produced by the European student unions about the implantation of the ESHE (The National Unions of Students in Europe, 2005), may worsen if there is no coordination between teachers in charge of the different courses. If this is the case, as it often is, students will end up overloaded with activities and varied tasks and the initial enthusiasm about the digital tools will soon fade away.

The results of our study clearly indicate a set of suggestions:

1. We need further developing research about the impact of the e-learning platform on higher education, not from a technological perspective but from an educational one that takes into account the complexities of already-established teaching and learning practices.
2. Institutions wanting to promote fundamental changes in the teaching and learning process focus their effort on team capacity building and developing abilities for collaboration. Individual actions are fundamental, but without the support and the commitment of groups, innovations cannot be sustainable.
3. The introduction of meaningful and sustainable change in the teaching and learning culture of an institution using digital tools needs time and space for teachers –and administrators. It requires a good deal of support not only in technical matters but also, and above all, regarding organisational and pedagogical issues.

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