TEACHING AND LEARNING WITH SOCIAL SOFTWARE IN HIGHER EDUCATION CONTENT MANAGEMENT SYSTEMS INTEGRATED WITH WEB-BASED APPLICATIONS AS A KEY FACTOR FOR SUCCESS

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Abstract

The change of paradigm imposed by the Bologna process, in which the student will be responsible for their own learning, and the presence of a new generation of students with higher technological skills, represent a huge challenge for higher education institutions. The use of new Web Social concepts in teaching process, supported by applications commonly called Web 2.0, with which these new students feel at ease, can bring benefits in terms of motivation and the frequency and quality of students' involvement in academic activities. An e-learning platform with web-based applications as a complement can significantly contribute to the development of different skills in higher education students, covering areas which are usually in deficit.

Keywords:
e-learning; web 2.0; social web; social software; collaborative work; teaching and learning methodologies; open source;

1. INTRODUCTION

The adaption of degrees to the Bologna Process constitutes a major challenge for Higher Education Institutions (HEI).

This process requires a change of paradigm, in which the teacher is no longer the keeper of knowledge and its exclusive transmitter and passing the responsibility to the student who has to lead his learning journey to develop the necessary skills. The teacher plays the role of facilitator and mentor of the learning process.

In this context, the Information and Communication Technologies (ICT) assume an important role to the extent that make available resources that allow the students more freedom in place and time in the management of their learning and facilitate communication with the teacher out of the classroom, a fact which is now more relevant since there is a greater burden of homework.

But changes in the teaching/learning process, focussing on ICT, are not motivated only by the imposition of the Bologna Process.

A new generation of students enters now in the HEI. They have greater technological skills, not necessarily acquired in secondary schools but, essentially, as result of a regular use of technology, not only of computers and Internet but especially of mobile phones, music players and consoles of games.
Democratization of broadband has allowed access to simple and easy to use tools, intuitive and available to all for free. The success of websites of social relationships, as Blogger, Wikipedia, Hi5, LinkedIn, Flickr or YouTube, is a proof of this.

Many of these new university students also have experience of social relationships in this type of virtual social networks, a fact which demands a different attitude in their learning process.

The availability of content is of great relevance. Several techniques have been developing, especially those derived from the concept of e-learning. For these reasons, there is a widespread use of platforms for distance education.

These platforms, among which Moodle is the most used, allow not only the accessibility to the content, but also the use of new tools in the teaching/learning process at the level of asynchronous interaction (news, discussion forums, syndication, etc.) and synchronous (chat) with the student, and their assessment (scheduled for publication and reception of essays, online assessment tests, surveys).

However, despite all these facilities, it has been found that students do not participate actively in online activities, especially those students who are less motivated to the use of ICT. They also show that, despite the success of these techniques within a particular course, there is not an easy way to develop a dynamic interdisciplinary.

Oliveira & Moreira presents an integrated platform for content management systems and web-based, known as Web 2.0 [10]. According to the authors, this platform enables improvements in several areas, such as: (i) social relationship, (ii) participation in the activities of each curriculum unit, (iii) habits of research, study, writing and discussion of subjects and (iv) interdisciplinary synergy.

This article discusses the validity of the platform presented and sets out proposals for its development. The text is organized as follows. In Section 2 is present the platform and the experience carried out to validate the benefit of its use. Section 3 presents a possible development for this platform, analyzing some limitations of the model proposed and pointing out strategies to overcome them. Finally, Section 4 sets out the conclusions and perspectives for some future developments in this work.

2. INTEGRATED PLATFORM OF A CONTENT MANAGEMENT SYSTEM AND WEB-BASED APPLICATIONS

Oliveira & Moreira propose the use of such applications to complement the platforms for distance education [10], as seen in Figure 1.

These platforms would be designed to manage the formal aspects of the curriculum unit related to teaching and learning, such as the availability of content and the means and results of the assessment, while the social web applications, being in structures outside the HEI and therefore outside its control, are used to explore the motivational aspects in the relationship with students. In order to optimize its use, the platform for distance education works together with other content management systems such as digital repositories.
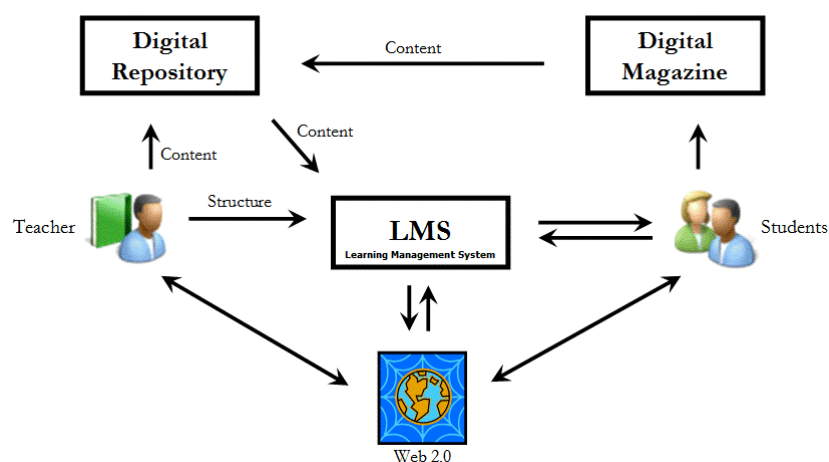

Figure 1 – Integrated Platform of Content Management Systems and Web 2.0 Applications

Still, as Oliveira & Moreira mention [10], based on their experience and success in the use of web tools, particularly by people in the age range of higher education students, there is a belief that the use of this integrated platform, involving different solutions, will enable improvements in the following areas:

- Increased interaction between teachers and students, without the constraints that usually occur in a presence relationship;
- Increased monitoring and participation in the activities of the course, with the feeling that the teacher is present and available;
- The development of habits of research, study, writing and discussion of subjects;
- Easier development of interdisciplinary synergies.

That is, the platform of distance education complemented with tools and web services, such as blogs, wikis and other social software, functions as in a community in which participants share experiences and develop together in their learning process, promoting the existence of *ad-hoc* communities of learning [6].

Basically, this is the evolution of e-learning to a next stage, which could be called *e-learning 2.0* [2].

To test the validity of this proposal, an educational experience was made during the 1st term of the academic year 2007/2008, involving pupils from last curricular year of the of the Ciências e Tecnologias da Documentação e Informação Degree (CTDI) (Information and Documentation Science and Technology Degree) of the Escola Superior de Estudos Industriais e de Gestão (ESEIG) of the Instituto Politécnico do Porto (IPP) [9].

2.1. Framework of the experience accomplished

The students involved in this experiment are basic users of ICT, with limited knowledge of web-based publishing. They have, however, good research habits using search engines and online bibliographic catalogs. These are students without a particular technological profile but who use this type of technologies with relative easiness and, therefore, qualified to participate in this experiment [5].

The analysis of previous academic years, based only on a qualitative assessment of the curricular units, highlighted the following facts related with the involvement of students in the activities proposed:

- Poor participation in activities not directly related with assessment;
- Absence of a research culture;
- Teamwork difficulties;
- Few habits of opinion building, writing and discussion of subjects;
- Few opportunities of performing interdisciplinary projects.

The results of the diagnosis evidence two decisive aspects: (i) reduced participation in the activities of the curricular units and (ii) reduced dynamic interdisciplinary.

In that sense, it was idealized a planning that consisted in the development of practical essays which all required the use of Web 2.0 tools, focussing the topic to develop in subjects of other curricular units. The number of tools proposed was reduced, so that the students could concentrate in its use and content in a satisfactory time of learning.

All of the proposed essays, accomplished in group, shared a common structure: (i) research of Web 2.o tools that better adapted to the purpose, (ii) choice and justification of one of the tools and (iii) focus on the topic using that tool, during a certain period.

Each group would have to manage all their work along the semester, using a collaborative tool.

2.2. Development of the experience

Students used several tools in the activities associated with the practical essays, but, structurally summarized, there were essentially three: discussion forums, wikis and blogs.

A dynamic of the use of these tools was developed for each essay, as shown in figure 2.

Whenever an essay begun, a discussion of the topic related with that essay in the forum of the Moodle platform was proposed to the students. The discussion was encouraged during the period of accomplishment of the work and it was only and exclusively used to the debate of aspects related with that topic, integrating doubts and explanations in the corresponding discussion forum.

To manage the collaborative work each group developed a wiki on one of two platforms: Wikispaces (http://www.wikispaces.com), due to its simplicity and ease of use, and Wikidot (http://www.wikidot.com), due to its largest design capabilities.
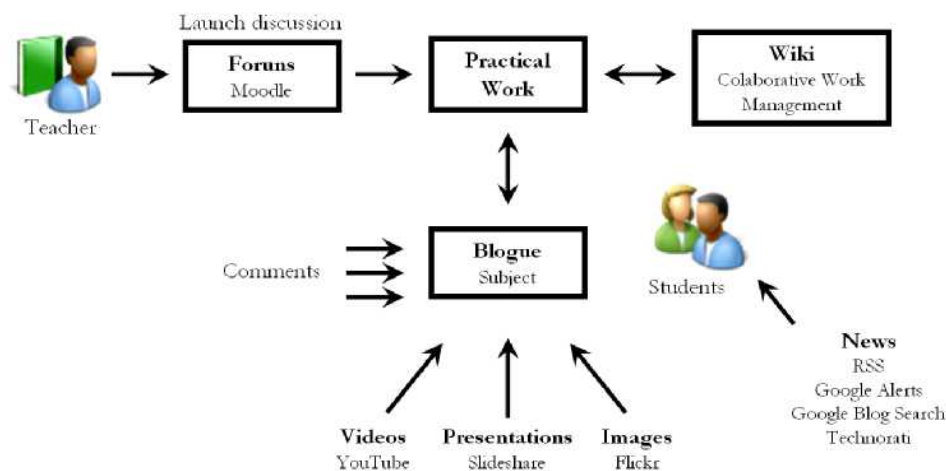

Figure 2 – Dynamics developed in each practical work

The stimulating of the topics was performed by using a blog as a base tool on one of the two most used platforms: Blogger (http://www.blogger.com) and Wordpress (http://www.wordpress.com). For the first one, Blogger, the reasons pointed out were, above all, the ease of use and the possibility to use more diversified external components (widgets). The second, Wordpress, was chosen due to the design capabilities and better statistical tools it provides.

The texts of the blogs were complemented with content available through other tools such as YouTube (http://www.youtube.com) for videos, SlideShare (http://www.slideshare.net) for the presentation of slides or Flickr (http://www.flickr.com) for images, always related with the topics covered.

The students also had to demonstrate their ability to obtain external contributions to the group in the form of comments that led to (i) "negotiation" of information exchange with other groups, (ii) dissemination of the blogs in other blogs of similar topics and (iii) invitation of other people to contribute to the blog.

The management of a blog requires constant updates, using the news or regular visits to websites related with the topic focussed. To keep up with the news the students used a variety of tools: subscribed RSS (Really Simple Syndication) to websites identified as interesting, Google Alerts (http://www.google.com/alerts) created to receive regular searches according to certain keywords, or searches performed using the Google Blog Search (http://blogsearch.google.com) or Technorati (http://technorati.com).

2.3. Results of the case study

This experience took place in the 1st term of the academic year 2007/2008, during a four months period, (from October 2007 to January 2008), a short period of time to obtain conclusive results. Nevertheless, the study reveals some interesting data which are presented below.

As a result of activity in blogs, it is possible to highlight:

- Increased frequency and interest in investigating issues related the essay in development, manifested by the regular proposal of reading of new articles and various contents;
- Increase of the critical spirit, evidenced by posting of (i) subjects more and more pertinent on read news, (ii) regular expression of personal opinions in the contents of the entries published or (iii) presentations of different visions of a same subject.

Regarding the use of wikis, it is pointed out:

- Easier coordination of the group work, particularly for key groups essentially formed by working students.

Another fact that evidences the interest demonstrated by the students in these matters was that the discussions of the subjects are prolonged beyond the end of the work to which they are related. Students demonstrated that remained attentive and interested in the issues discussed.

2.4. Comparative analysis

Despite the fact that the data obtained and presented are related with curricular activities in a unit that was put in practice for the first time in the 1st term of the academic year 2007/2008, it is possible to use a group of data obtained with the same students and the same teacher in a different curricular unit, which occurred in the 2nd term of the academic year 2006/2007. In this curricular unit, the topics' discussion and the explanation of doubts were mainly done in presence, complemented with some activity in Moodle discussion forums.

Therefore, for comparison between the two curricular units, it is possible to use two factors that have occurred in both: the number of publications and the number of views.

Figure 3 shows a chart with data obtained in shares in the forums of the curricular units of different academic years.
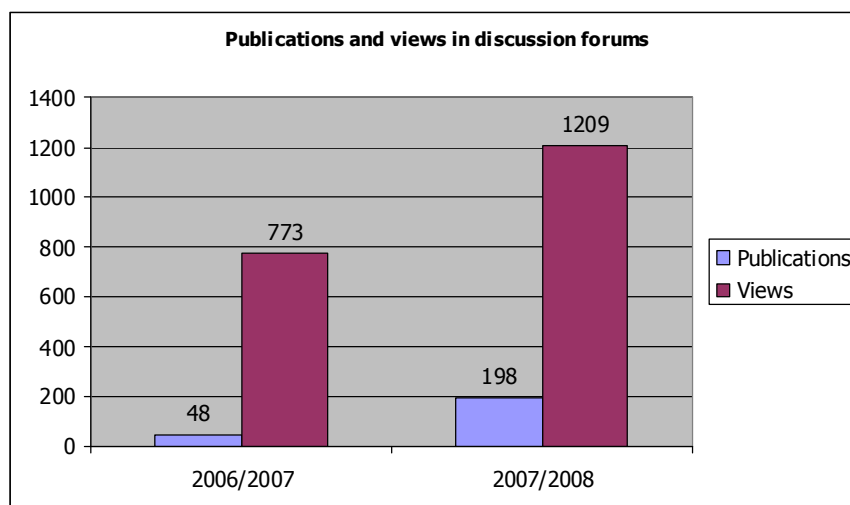

Figure 3 - Participation in discussion forums

In the first year, 2006/2007, in which the discussion of the topics was mainly made in presence, there were 48 publications and 773 views. In the second year, 2007-2008, included in this case study, there were 198 publications and 1209 views.

From these results it is possible to see a sharp growth in the use of the platform of about 321,5% in publications and 56,4% in views. In the opinion of the authors this growth was due to the dynamics used and shown in figure 2.

3. POSSIBLE EVOLUTION OF THE PLATFORM

The platform presented in the previous section tries to intervene in important aspects of the teaching/learning process, such as (i) organization of the curricular unit and its content, (ii) assessment of students, (iii) discussion of issues related with the subjects taught and (iv) socialization among students and between students and teachers. Issues like the motivation are treated using, especially, Web 2.0 applications, which students feel the will to use, exploring many of the tools' features, overcoming their own obstacles and exercising their creativity.

However, this model has limitations, especially in the socialization aspect, standing out the following:

- The social functions of Moodle are low, particularly the inability to link various contents to your profile;
- The relationship is only possible between students enrolled in the same curricular unit and can not last beyond the lifetime of the curricular unit of the academic year in progress;
- Failure to establish interdisciplinary relationships.

These limitations can be overcome by supplementing the Moodle with the use of a social network platform on the Web, for example Ning (http://www.ning.com), or using specific software for management of social networks, of which the Elgg (http://elgg.org) is an *open source* example.

The platform in discussion uses social software available on the Web and therefore housed in public servers. This practice can be a concern because the content created by the students is out of control of HEI and this causes constraints on its full use in the assessment process.

An alternative to this solution is the use of software installed on servers housed in the infrastructure of the HEI, therefore, under institutional control.

There is a wide range of this type of *open source* software that covers the needs of social software discussed, among which we highlight the following:
- Social networks: Elgg (http://elgg.org)
- Discussion Forums: phpBB (http://www.phpbb.com)
- Wikis: Tikiwiki (http://www.tikiwiki.org)
- Blogs: Wordpress MU (http://wordpress.org)

The use of this social software in the infrastructure of HEI allows all the students to create contents in the same platforms, assuring a solution in which all of them are in equal conditions. Moreover, since access to platforms, and therefore to the content housed therein, depends on the authentication system of the infrastructure of HEI, it creates conditions so that those contents are not accessible and adulterated for people who are not properly authorized.

As a consequence, once the contents are created as part of a curricular unit, these can be considered in a correct and fair assessment. This way, the integrated platform of content management system and web-based applications constitutes an environment for teaching and learning and, simultaneously, of controlled evaluation.

4. CONCLUSIONS

The use of an integrated platform of content management and web-based applications enabled significant improvements in all of the points identified as deficient, presented in Section 2.1.

These results were only possible because of joint action, integrated and regular use of forums, blogs and wikis.

Detailing the reasons that justify this statement:

- Dynamic discussion of subjects related to the Web 2.0 tools used;
- Intensive use of those tools in different moments of the work development;
- Interest in further research to enrich the information published;
- Participation in other blogs, particularly of the other work groups of curricular unit, and maintaining contact with the comments of others, always present in such websites.

The use of social software installed in servers housed in the infrastructure of HEI will include, without any constraints, the assessment of the contents created by the students in blogs, wikis and discussion forums.

The use of this type of tools gave us some ideas that may be subject to review and possible implementation in the future:

- To document the research effort of the students so that they become available to other colleagues in order to promote community learning, providing collective intelligence. This can be done using the *social bookmarking* (http://en.wikipedia.org/wiki/Social_bookmarking), using services like del.icio.us (http://del.icio.us) or the diigo (http://www.diigo.com);
- To bring together the different strategies of the curricular unit in a virtual social network, for example using the Ning platform;
- To build and to maintain a wiki with content related to the curricular unit, with the participation of students.

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