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CONNECTING MOODLE IN THE FACEBOOK SOCIAL NETWORK FOR IMPROVING TEACHING LEARNING PROCESS AT UNIVERSIDAD POLITÉCNICA DE CARTAGENA

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Abstract

Since 2002, the Universidad Politécnica de Cartagena (UPCT) uses the Learning Management System Moodle as support teaching tool. This tool is widely used by teachers, but is not well accepted by students. They prefer those tools that they daily use in their leisure time, instead of those specifically designed as learning platforms. This led, in 2009, the authors of this work developed a pilot in Facebook: a Facebook page, linked to Twitter, to support teaching of a compulsory subject of Telematics Engineering degree. After three years of pilot, results show that the use of this platform by students is a success. Students are more interested in the information the teacher published on the page, the site is visited regularly, and all teaching information (explanatory videos, reporting notes, etc.) is displayed quite frequency. In order not to neglect the use of Moodle, and to provide students a unique environment to access all the information of the subject, this work addresses the integration of the social network Facebook and the Learning Management System Moodle used in UPCT. This will permit students can associate their Facebook account with their Moodle account and they could also use their Facebook account to log into Moodle. Moreover, teacher could add a Facebook live stream box as an activity in a course. With this, any post made to Facebook from Moodle will automatically include a link back to the Moodle site, extending the social connections created within Moodle.

Keywords: EHEA, ICTs, social networks, LMS.

1 INTRODUCTION

European Higher Education Area (EHEA) [1] guidelines are promoting the modernization of the universities all over Europe, focusing on creating more comparable, compatible and coherent systems of higher education in Europe. One of the goals of the EHEA is to offer the Universities the opportunity enhancing the learning process with the Information and Communication Technologies (ICTs). ICTs offer us a wide range of possibilities to generate new teaching methodologies, materials, etc. Sometimes, the difficulties of students and teachers to get familiar with ICTs applications are barriers to the introduction of these technologies. In particular, students prefer those ICT tools that they daily use in their leisure time (e.g. Social Networks, blogs, wikis), instead of those specifically designed as learning platforms, that is, the Learning Management System (LMS) like Moodle [2] or Caroline [3].

In the Universidad Politécnica de Cartagena (UPCT) [4], Moodle is the LMS of reference. The tool designed under this LMS is called Aul@ Virtual [5]. This is a tool where both students and teachers have utilities for communication (chat, forums, messaging, calendar) and tools to carry out a continuous and flexible learning. Aula Virtual has been designed to be a learning environment where students can also learn, share experiences and knowledge and teachers have an effective, reliable and with the possibility of having a detailed progress and assimilation of knowledge by students.

Although the goal of Aul@ Virtual is clear, the difficulties of students and teachers to get familiar to this application is still a barrier. Students prefer the ICT tools that they daily use in their leisure time, instead of those specifically designed as learning platforms. This led, in 2009, the authors of this work developed a parallel platform to support teaching of a compulsory subject of Telematics Engineering degree [6][7]: a pilot in Facebook: a Facebook page [8] linked to Twitter [9].

Currently, this pilot has three years of life, and from the beginning was a success. Students were more interested in the information the teacher published on the Facebook page, the site was visited regularly, and all teaching information (explanatory videos, reporting notes, etc.) were displayed quite frequency. In order not to neglect the use of Aul@ Virtual of UPCT, and to provide students a unique environment to access all the information of the subject, we think on the possibility of linking Moodle and Facebook. This would permit students could associate their Facebook account with their Moodle

account at UPCT and they could also use their Facebook account to log into the Moodle platform. Moreover, teacher could add a Facebook live Stream Box as an activity in a course. With this, any post made to Facebook from Aul@ Virtual will automatically include a link back to the Aul@ Virtual site, extending the social connections created within Aul@ Virtual.

The rest of the paper is organized as follows: section 2 describes the Moodle platform. Section 3 overviews Facebook and the pilot created by the authors. Section 4 summarizes how to link Moodle and Facebook. Finally, section 5 concludes.

2 MOODLE AT UPCT

Moodle is the acronym for Modular Object-Oriented Dynamic Learning Environment. It is an open source Learning Management System (LMS) also known as Course Management System (CMS) or Virtual Learning Environment (VLE). That is, a free web application used by educators to create effective learning sites online.

Moodle is very popular among educators around the world as a tool for creating online dynamic web sites for their students. The only requirement to use it is to install it on a web server that runs PHP [10] and supports SQL type database [11]. It can be installed in a personal computer or in the server of a hosting company. It can be installed under Windows, MAC and Linux Operative Systems.

Since 2004, the UPCT works with Moodle, providing teachers and students a virtual space where they can share resources of those subjects taught in the UPCT. Previously, UPCT had been working with WebCT (now known as Blackboard Learning System [12]), but it was not open source. This fact and the mass adoption of Moodle in Higher Schools and Universities around the world made the UPCT do not hesitate to upgrade to Moodle, creating Aul@ Virtual platform (Fig. 1).

Teachers and students can access Aul@ Virtual log in with their National identity number. Teachers use the password of their UPCT e-mail account and students use the password they received when they enrolled in the UPCT.



Figure 1. Main page of Aul@ Virtual

When teachers enter the system, all subjects they teach are plotted in a list. They can click in one of them for accessing to it. For every subject, Aul@ Virtual not only permits to upload resources, but also provides communication tools and activities to support classroom teaching to promote learning, such as chat, forum, Quiz, etc. Figure 2 shows a snapshot of the virtual space created for the compulsory subject Laboratory of Networks and Communication Services (aka LN&CS), a second year subject of Telematics Engineering degree, at UPCT, which is taught in the summer semester.



Figure 2. Snapshot of the virtual space of LN&CS subject

After more than eight years working with Aul@ Virtual, the authors of this work have observed that these LMS tools facilitate student learning, to have all the themes of the subject at the beginning of the course updated and available online from anywhere, anytime. However, the experience had also led to the conclusion that these tools are a cool, organized and academia, where the teacher maintains control and the active participation of students in learning (one of the cornerstones in the EHEA) is almost nonexistent teacher-student interaction, student-student, etc., is produced by private messages, and discussion forums offered Moodle not create confidence in the students.

Thus, during academic course 2009/2010, the authors of this work decided to use a complementary virtual environment, trying to stimulate interaction between teacher-student and student-student. The goal was to find a friendly and reliable platform designed for people of age between 18 and 30 years, where they could exchange views, experiences and all types of content relevant to the subject: links, photos, videos, etc. This required a space 2.0. Thinking on the popularity of social networks and the great use of them, authors of this work thought it might be a good alternative, plus it met all the requirements set. After a deep study, authors decided to use Facebook [6]. The pilot created is summarized in the following section.

3 FACEBOOK SOCIAL NETWORK

Social networks are of great interest among the general population, but young people are who, above all, use more these platforms to communicate, exchange information or express their opinions. That is why the universities have been forced to look to these tools, looking for ways to use them with educational purposes. There are many examples of this [13-16], but, from these, only a few cases are found where social networks are being used exclusively to improve teaching and encourage learning of a university subject [17-20].

Three years ago the authors of this work also decided to use social networks for improving teaching-learning process. To reach this challenge, we created a pilot of a platform in Facebook (a Facebook page), linked to Twitter, to support teaching of the compulsory subject LN&CS. After three years running, we can conclude that the pilot was a success. Only to remark that in the pilot, a 98% of students enrolled in the subject. The active participation of this population was collected and the results showed that student were really interested in the information the teachers published on the page. The site was visited regularly, and all teaching info (videos, links to other pages, notes, etc.) are displayed quite frequently, getting results of up to 195 visits in a single video when only around fifty students were enrolled. Results also showed that the teacher-student interaction was not limited only to the day when the master class is taught, it could be every day, at any time. Of course, we realized that the use of social networks may not ensure that students get a better understanding of subject contents, but they promote a positive attitude of students towards course, greater teacher-student and student-student interaction, etc.

In order not to maintain both platforms: the subject in Aul@ Virtual and the pilot in Facebook, we thought on the possibility of linking Aul@ Virtual and Facebook. This would allow us that students, when they were connected to Aul@ Virtual, might be seeing some of the messages that users are sending through Facebook (on the wall), or to post in the Facebook wall any message directly from Moodle. Moreover, students might associate their Facebook account with their Aul@ Virtual account and they even could use their Facebook account to log into the Aul@Virtual.



Figure 3. Snapshot of the pilot of LN&CS subject in Facebook

4 LINKING MOODLE AND FACEBOOK

In this section we explain two ways of linking Moodle and Facebook. The first one is only to add a Facebook live stream box into a subject web page, and does not involve the use of a Moodle administrator account, but to have a Facebook account. The second option is more complicated, because it involves, not only to have a Facebook account and a Facebook page, but also to work as administrator in Moodle. Moreover, you have to create a Facebook application. Despite the complexity, this way permits to add the possibility to associate Facebook accounts to the Moodle platform, creating a Facebook bottom to log into the main page of our Moodle platform. We will start addressing the first configuration.

4.1 Configuring a simple Facebook live stream box in Moodle

In the following paragraphs we summarize the steps for installing a Facebook live stream box (also called comment box) in the main page of a subject included in a Moodle platform. In this work, the subject is LN&CS and the platform is Aul@ Virtual.

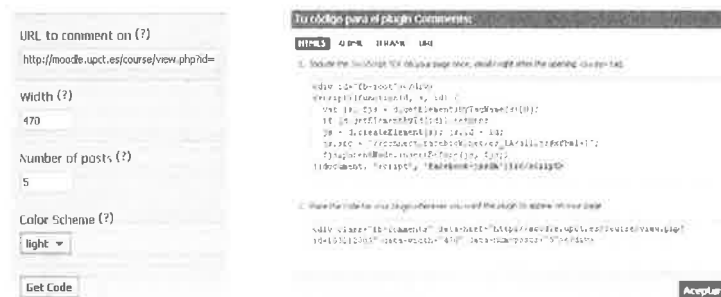


Figure 4. Facebook Comment plugin: (a) Configuration box; (b) Source code generated with configuration in (a)

The first step is to go to the Facebook social plugins web site [21], and to click on "Comments" plugin. A new page appears where the goal and main characteristics of the comment box are summarized. At the end of the page we find the fields to fill with the aim of getting the source code we will need for generating a comment box in the virtual space of our subject. Fill the gaps with the URL of your subject and change the value of width and number of posts according to your preferences (see Fig. 4 (a)). After that press "Get Code" button. The source code will appear in a new applet (see Fig. 4 (b)).

Then, go to virtual space of your subject and enter the editing option. After that, edit the place where you want to put the live stream box. We decided to put it into the first block, as shown in Fig. 5. A new applet is opened for editing this block.

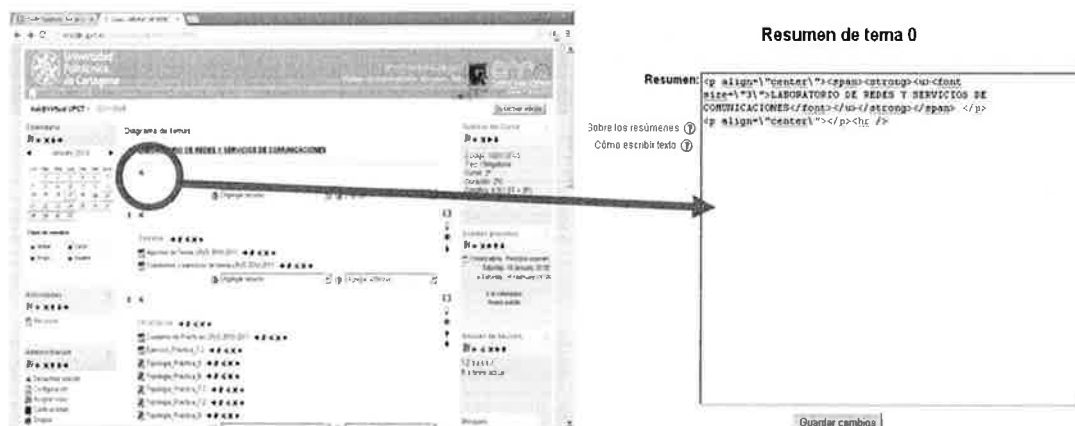


Figure 5. Snapshot of an editing section in the virtual space of a subject in Aul@ Virtual.

The code generated in the plugin comment page must be included after under the code that appears. In our example is as follows (see Fig.6): The teacher must write the code in black color and include the code in red, which is the code on the top box of Fig. 4(b) and the code in green, which is the code on the bottom box in Fig. 4 (b).

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<p align="center"><span><strong><u><font size="3">LABORATORIO DE REDES Y SERVICIOS DE
COMUNICACIONES</font></u></strong></span> </p><p align="center"></p><hr />
<div align="center">
<div id="fb-root"></div>
<script>(function(d, s, id) {
  var js, fjs = d.getElementsByTagName(s)[0];
  if (d.getElementById(id)) return;
  js = d.createElement(s); js.id = id;
  js.src = "//connect.facebook.net/es_LA/all.js#xfbml=1";
  fjs.parentNode.insertBefore(js, fjs);
})(document, 'script', 'facebook-jssdk');</script>
<div class="fb-comments" data-href="http://moodle.upct.es/course/view.php?id=103112005" data-
width="470" data-num-posts="5"></div>
<br /></div>

```

Figure 6. Example of source code for installing a Facebook comment box i in Aul@ Virtual.

After that you must save the changes. You will go back to the main web page of the subject and the Facebook live stream box will appear, permitting teachers and students communicate through their Facebook accounts (see Fig. 7).



Figure 7. Example of facebook comment box in the virtual space of a subject in Aul@ Virtual.

4.2 Configuring a complete Facebook application in Moodle

In 2010, the software development community of Moodle published a complete module to interconnect the social network Facebook. Currently, this software is available for Moodle 1.9 or later. This module can be found in the following link [22]. This module allows the following features:

- Users to add associate their Facebook account with their Moodle account
- Users to use their Facebook account to log into Moodle
- Teachers to add a Facebook Live Stream Box as an activity in a course

The requirements before installing this module are: (1) to have a Facebook account and (2) to register a Facebook application in the Facebook developers site [23]. The former is done, because for the pilot of LN&CS we had to create a Facebook account. The latter is less common. Normally, you do not have any an application created. Hence, it is necessary to create an application. The steps are as follows: Press "register now" button, fill the gaps with the information required (your mobile phone number) and, after that, you will receive by text message, a code to confirm your interest. A new applet appears, with different options. We must select "Facebook Integration" option, and fill the gaps. Note that the API ID and API key are on the top. Keep these data because you will use them in a future. On the bottom you will have to fill the name of the application. If you do not know, you can invent it. In this work we called "LinkingFaceAndMoodle". In the URL gap you must include the URL of the place where your application will be run (that is, the root URL of your Moodle site). The rest of the options to configure can be ignored.



Figure 7. Creating a facebook application

After that, you can install the module. First, you have to download the Facebook package from [22]. It contains three directories that must be moved to your Moodle server as follows:

- Move the contents of the "auth" directory to your Moodle "auth" directory.
- Move the contents of the "user" directory to your Moodle "user" directory.
- Move the contents of the "mod" directory to your Moodle "mod" directory.

Then, go to "themes" directory and add the following line in the header.html file:


```
<html xmlns:fb="http://www.facebook.com/2008/fbml">
```

Finally, go to the Moodle administrator account, log in and go to "Notifications" section, listed on the left side. Then, go to Modules->Activities->Manage Activities, click on "Facebook Live Stream Box" to activate it. It will require filling the gaps with the API ID and API key that you saved previously from Facebook developers' page. Go back to "Manage Activities" section and be sure that "Facebook Live Stream Box" is in enable mode.

The screenshot shows the Moodle configuration page titled "Nuevos ajustes - Facebook Live Stream Box". It contains three main sections: "API key" with a text input field and a "Facebook API key for your Facebook application" description; "Facebook Application Secret" with a text input field and a "Facebook Application Secret for your Facebook application" description; and "Replace profile pictures" with a checkbox and a note about replacing profile pictures with Facebook ones. At the bottom, there is a "Guardar cambios" button.

Figure 8. Configuring Facebook live Stream Box in Moodle

With these steps, the same tool as in the previous section is available. With the aim of activating Moodle authentication by Facebook account, we should configure Moodle as follows:

- You must enter in Moodle as administrator, and go to Users->Accounts-> User profiled fields.
- Click on add a new profile field and put a name, e.g. "Facebook", and save the changes.
- Go to Users->Authentication->Manage Authentication, and click on the Facebook module to be enabled.

The screenshot shows the Moodle configuration page titled "Creando un nuevo 'Facebook Connect field' campo de perfil". It is divided into "Ajustes comunes" and "Ajustes específicos". Under "Ajustes comunes", there are fields for "Nombre corto (único)", "Nombre", and "Descripción del campo", all with the value "facebook". Below these are several dropdown menus for "¿Es este campo necesario?", "¿Está este campo bloqueado?", "¿Deben ser únicos los datos?", "¿Mostrar página al inscribirse?", and "¿Quién puede ver este campo?". The "Categoría" dropdown is set to "Usuarios y grupos". At the bottom, there are "Guardar cambios" and "Cancelar" buttons, and a note "En este momento hay Campos 000 definidos".

Figure 9. Activating Facebook authentication in Moodle (I)

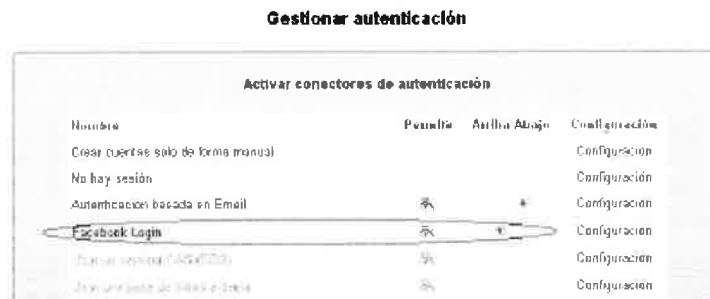


Figure 10. Activating Facebook authentication in Moodle (II) [24]

After that, everything should be ok, and the option to log in with Facebook account should be enabled in the root page of your Moodle platform.



Figure 11. Facebook button in root page of Moodle platform [24]

Note that users will work with the profile picture they have in Moodle. If you prefer the picture that teachers and students have in Facebook appears in Moodle, some modifications must be done in the core Moodle file. In this work, this approach is not addressed, but in [22] the steps are explained.

The authors of this work have checked the last part in a temporal Moodle installed in a personal computer. The goal is to be able to install this module in Aul@ Virtual.

5 CONCLUSIONS

In this work, we have shown how to link Moodle platform, the Learning Management System used by UPCT, with Facebook social network, the most popular social network used by students. The idea comes from some previous works, where the authors checked the difficulties of students and teachers to get familiar with LMS tools and studied if social networks could help to improve learning teaching process. In order not to neglect the use of Moodle in the UPCT, and to provide an attractive tool for students, that could help to motivate students to participate in the learning-teaching process, we decided to unify the efforts in keeping a unique environment to access all the information of the subjects, that is, Moodle. And to link Moodle and Facebook with the aim of permitting students could associate their Facebook account with their Moodle account at UPCT and they could also use their Facebook account to log into the Moodle platform. Besides, teachers could add a Facebook live Stream Box as an activity in a course. With this, any post made to Facebook from Moodle will automatically include a link back to the Moodle site, extending the social connections created within Moodle.

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