

ATENEA UPC

AND THE NEW "Activity Stream" or "WALL" FEATURE

Jesus Alcober¹, Oriol Sánchez², Javier Otero³, Ramon Martí⁴

¹ *Universitat Politècnica de Catalunya (Spain)*

² *UPCnet (Spain)*

³ *UPCnet (Spain)*

⁴ *UPCnet (Spain)*

[jesus.alcober @ upc.edu](mailto:jesus.alcober@upc.edu), [oriol.sanchez @ upcnet.es](mailto:oriol.sanchez@upcnet.es),
[javier.otero @ upcnet.es](mailto:javier.otero@upcnet.es), [ramon.marti @ upcnet.es](mailto:ramon.marti@upcnet.es)

Abstract

The Universitat Politècnica de Catalunya–Barcelona Tech (UPC), has added a new feature to its ATENEA UPC e-Learning platform based on Moodle. ATENEA UPC Service is UPC's e-Learning platform which supports the Bachelor and Master studies, both face-to-face and blended. This new feature, called "Activity Stream" or "wall", allows progress in the implementation of methodologies based on social learning and mobile learning within the field of university studies.

The Institut de Ciències de la Educació (Education Sciences Institute - ICE) leads the educational aims of the platform, and UPCnet -UPC's ICT services company- offers the service and carries out the technical evolution projects of the platform (change of versions, development of new features, ...)

The ICE, teachers at UPC and UPCnet, through working groups and projects in ATENEA Teaching Innovation LABs, evolve and test the new features of the platform that will later incorporate to UPC's ATENEA Service.

The aim of this presentation is to explain the pedagogical motivation of the initiative, the feature's design process, the technological development done and the result of the actual experience carried out between February and June 2012 within the framework of the official engineering studies taught at the Escola d'Enginyeria de Telecomunicació i Aeronàutica in Castelldefels (EETAC).

Keywords: Social Learning, Mobile Learning, e-learning Projects and Experiences, Blended Learning.

1 OBJECTIVES

Since 2005, the ATENEA UPC [1] [3] Service is based on Moodle [2] open source platform which has adapted to the requirements both pedagogical and technical of the UPC.

Since its inception, the use of ATENEA Service has been very intense. 18,000 different people are currently using the platform on a daily basis and has become a critical service to the university. Each quarter 36,000 students and teachers use the platform to access the 4,000 different subjects from different studies at UPC.

A group of professors at the Escola d'Enginyeria de Telecomunicacions i Aeronàutica in Castelldefels -Engineering School of Telecommunications and Aeronautics (EETAC)- [4], raised in late 2011 the need to incorporate into the design of their learning processes, activities that would foster greater student participation within a social context but endowed with a greater capacity to contribute within the framework of the subject; without the rigidity of having to

access the campus environment. From this approach, we defined the use of social networks as a support mechanism for teaching (Twitter, Facebook, Google+...).

This situation pointed towards a lack of response and loss of importance of the virtual campus as an aggregator of the various activities associated with the learning process. This situation led to the creation of a project where the 2.0 features that teachers were asking for could be incorporated within the virtual campus as to ensure that UPC's learning environment provide a real and efficient response to the needs of the new teaching methodologies.

In a context of ECTS credits, in which the learning process is centered on the student and what is measured is the time the student devotes to the acquisition of specific and transversal skills, we need the provision of tools for students and teachers to facilitate a more autonomous and collaborative learning. That is why this project has been institutionally supported by the university's Vice-chancellor and the school board in which the initiative has been posed.

2 DEVELOPMENT OF EXPERIENCE

2.1 FIRST PILOT

A multidisciplinary working group consisting of EETAC teachers, ICE skilled personnel and UPCnet technical teams have designed and developed a new activity stream (AS) feature on Moodle that responds to the needs posed.

"Fig.1" shows ATENEA's main screen where one can see, from left to right, the list of subjects (lower left block) and the "Activity Stream" or "wall" (central block), a series of threads of conversation among the various participants of different subjects.

The screenshot displays the ATENEA UPC service interface. At the top, there is a navigation bar with the UPC logo and the text 'ATENEA'. Below this, a user profile for 'Carmen Ballesteros' is visible. The main content area is divided into three sections:

- Left sidebar (Courses):** Lists various subjects such as 'Planificació de mitjans audiovisuals', 'Sociologia de la comunicació', 'Tècniques d'investigació de l'opinió pública i ètica de la comunicació', and 'Arquitectura de Computadors'.
- Central Activity Stream:** A 'Participal' section showing a list of posts from various users, including professors and students. The posts include questions, announcements, and updates related to courses and events.
- Right sidebar (Calendar and News):** Features a calendar for the month of November and a section titled 'Actualitat UPC' with news items.

The bottom of the page contains copyright information for UPC and links for accessibility.

Figure 1. ATENEA UPC service with Activity Stream (AS)

Within ATENEA, the "Activity Stream" is shown within three different contexts: On the home page ("Figure 1"), within each subject and within groups.

There is a hierarchy among the three previous contexts, so that the threads of conversation are shown:

- (A) Among the participants of a group
- (B) Among the participants of a subject, and all the groups within that subject that the user belongs to (student or teacher)
- (C) On the main page. A list of all the threads of conversation of all the subjects and groups the user belongs to (student or teacher)

The technological development, determined from the specifications considered, has been carried out and put into operation by UPCnet's technical teams within the framework provided to UPC.

This new feature has been incorporated into the teaching of subjects of four official Bachelor studies and two Master studies for the second semester of the 2011/2012 school year which started in February with 142 subjects and groups and 500 potential people.

Some usage data from February reads as follows:

	FEBRU ARY	MARC H	APRIL	Total
Questions	34	149	122	305
Answers	24	88	119	231
Subjects	17	37	36	57
Groups	8	29	17	51
Different Contexts	25	68	53	108
Different Users	34	115	89	160

Figure 2. Some usage data of Activity Stream (AS)

From "Fig. 2", it can be seen that the usage of the AS is increasing, although in April less activity days were recorded due to Easter break. Most of the uses of the AS were to quickly communicate within the context; specially with groups and subjects. In fact, the AS has become the instant messenger of Atenea, and, hence, the way professors and students communicate in a freshly manner.

Out of the class, the AS has been used as a simple way to communicate brief messages, such as a sudden change of class or a reminder of an activity. During the class hours, the AS has become the natural group instant messenger between professor and students, a synchronous tool used, for example, to transmit a link the professor has just mentioned, or to send the link of a join-me session to access to the PC of the professors and view his/her screen.

The current use of the AS is quite asymmetric; i.e., the professor is who initiates the conversation, and most of the times, there is no reply by the students, because most of them do not know that the AS can be initiated by them as well as by the professor.

Another important aspect that affects the use of the AS is that most of the professors fulfill the need of this simple and flexible way of communication by the use of the forums. The AS intends to be used in a more simple and quicker manner, but those accustomed to working with forums, consider that it is not worth to change to AS just for some cases, basically because of the synchronous communication in class. However, the appearance of the AS has convinced those professors that did not use the forums in the past (because instead, they obliged students to fill out a form just to inform of something), to use it now.

As a conclusion, the AS allows adding more users to the portfolio of direct communication between professors and students.

2.2 SECOND PILOT

During the first pilot, AS was used as a place where simple and short messages could be sent directly to the students and professors, in a context manner. Up to then, besides the use of forums in Atenea, some of the subjects had been using Twitter in a similar way, in order to send short messages to the students.

Basically, two ways of using Twitter were identified. The first one was that the subject had a Twitter account, managed by the professor, and the second one was to use a hashtag associated to the subject.

In the first approach, the student had to become a follower of the Twitter account of the subject and, then, receive its tweets. The interesting advantage of this approach was that students from the past were still followers and received the tweets, creating somehow a subject community, growing in number on yearly basis.

The second approach was more flexible, because the use of a hashtag was simpler to use, but the messages did not reach the students unless they searched for this hashtag or they had a saved search to look up. In fact, this second approach was used more by professors to access to students' outcomes from an assignment. For example, the student had to read a report and "tweet" it in several tweets, in the same way than creating some highlights of the text of less than 140 characters and send it publicly.

These several ways of using Twitter in class were totally aligned to the use of the AS in Atenea, and the second pilot was established to merge the use of Twitter in class and the AS. The goal was to integrate the Twitter activity of a subject and the AS as shown in "Fig. 3":



Figure 3. Activity Stream with Tweets incorporated

So, the integration consisted on feeding the AS from the tweets provided by any of the members of the class, just adding a hashtag of the subject and the hashtag of the university #upc. All the tweets accomplishing these three rules, were published into the AS.

Additionally, all the tweets coming from the Twitter account of the subject were published directly. The hashtag name and the account name were configured in the subjects' parameter section. Additionally, all the members of the class might configure their Twitter account in the profile section.

The use of Twitter to feed the AS has leveraged its use, because first of all, the students can create an entry in the AS just by sending a tweet with the hashtag of the subject and the hashtag of the university. Several students "discovered" that they could initiate AS streams this way.

Additionally, the AS has become the integrating stream of all the information related to the subject, and part of this information comes from the public Twitter, where another group of alumni can interact as well.

Secondly, as any tweet coming from the subject account of Twitter is published into the AS, this account has become a tool to compile all the interesting information on the subject, not only manually but also automatically. For example, if a blog publishes interesting entries on the subject, it can be configured automatically using tools such as ifttt (ifttt.com) to feed the Twitter account and, hence, to feed the AS.

3 NEXT STEPS

3.1 The SOM.UPC initiative

In September 2012 it is planned to incorporate the Activity Stream component to all subjects in the ATENEA Campus. This is the first step in an initiative by UPC called the SOM.UPC. That aims to create an ecosystem of applications and integrated services that provide members of the university community with:

- A personal, customizable web portal
- An added, mobile, social and real-time information flow
- A unified access to the services offered by the institution (at present and in the future)

To achieve these objectives, the platform supporting the initiative SOM.UPC will be made up of:

1. The **set of internet-based information systems** that UPC provides its users with (such as the Virtual ATENEA campus)
2. An **internet portal** (som.upc.edu) acting as a gateway to applications and that each user will be able to customize
3. An **Activity Stream** widget that will add the activity generated by users and applications that each user decides to "follow"
4. A **catalog of applications** that will provide the portal with information about the different integration capabilities:
 - adding a widget that provides access to common functions,
 - publishing activity in the Activity Stream or
 - simply providing a link to the application
5. A set of **mobile Apps** (preferably Web Apps or hybrid applications) that will provide access to the portal via smartphones and tablets with an optimized user experience
6. A set of **APIs, services, documentation**, etc. to facilitate the incorporation of new applications to the platform

The following wireframes "Fig. 4" and "Fig. 5" show a possible look of the SOM.UPC website. The first image shows the Activity Stream customized by a user (with the contexts and sources that the student has chosen to receive), and the second image, presents the catalog of available applications that can be accessed from the portal.



Figure 4. Prototype of the som.upc.edu portal with Activity Stream

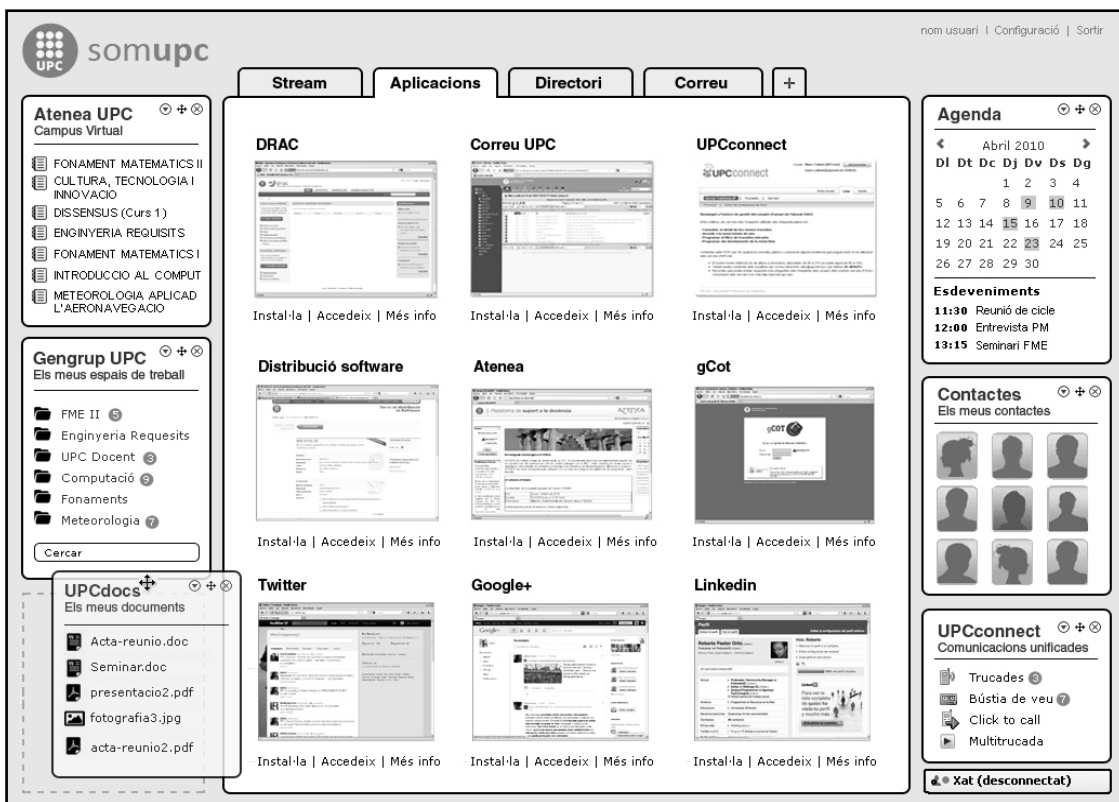


Figure 5. Prototype of the som.upc.edu portal with the catalog of available apps

3.2 The SOM.UPC platform architecture

To generate and deliver the information flow (Activity Stream) aforementioned, we have designed a modular and flexible architecture that can be summarized as follows "Fig. 6":



Figure 6. The SOM.UPC platform architecture

The centerpiece of this architecture is the MAX system (Activity and Subscription Enhanced Engine) that handles the subscriptions of every user in different contexts where it can generate activity (applications, users, subjects of ATENEA, services like Twitter, etc.) and delivers all this activity to different consumers (the som.upc.edu widget, widgets present in systems such as ATENEA, the mobile apps, social networks, etc.).

3.3 Mobile Apps and social networks

The next step after engaging the Activity Stream in all the ATENEA courses will be to publish Google Play and App Store both native applications that are developing for Android and iOS platforms. These applications will allow the consulting, filtrating and participating in StreamUPC chats the same way as in other channels as seen in "Fig. 7"



Figure 7. Apps for mobile devices

Afterwards, the functionality that the StreamUPC Apps should offer for social networks such as Facebook will be analyzed.

4 EXPECTED RESULTS

The expected outcomes of this initiative are two:

- **Pedagogical:** The incorporation of an activity stream functionality allows teachers to advance in an efficient manner in the implementation of learning methodologies based on social components (interaction, collaboration) and mobility. Students initially have welcomed the initiative positively, something that seems logical given the predisposition and habit with the use of 2.0 tools. A key aspect in the development of the experience will be the involvement of these new features as part of the learning process. The teaching of this first course will identify in which specific aspects value is being added and the students' assessment.
- **Technological:** The experience will allow an assessment of the actual use and determine whether its design has provided an effective response to the educational needs. This assessment will make possible an evolution of the functionality in the sense of a greater integration within the functionalities of Moodle. On the other hand, special attention must be paid to the ability of students to interact in the virtual classroom environment through their own devices (laptops, tablets, smartphones...) and learn from their experience as users.

The assessment of the experience will enable us to identify opportunities for improving design aspects of the learning process and technological aspects, in order to facilitate the activity stream feature universally to all official graduate and master studies at UPC (2,300 teachers and 30,000 students).

REFERENCES

- [1] Description ATENEA Service. http://www.upc.edu/atenea?set_language=es
- [2] Moodle. Virtual learning platform. Available at: <http://moodle.org/about>
- [3] UPC. Project Documentation "ATENEA Service. Managing the Virtual Campus of the UPC." Honorable mention in the IV University Management Award organized by the Social Council of the UPC, 2011.
- [4] Escola d'Enginyeria de Telecomunicacions i Aeronàutica EETAC <http://eetac.upc.edu/en/>