

# A TOOL FOR TIME MANAGEMENT IN THE NEW EUROPEAN HIGHER EDUCATION SYSTEM

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**Abstract:** The present education model is being modified according to the objectives of the European Space for Higher Education. One of the main changes is the adoption of the European Credit Transfer System as the criteria for measuring the workload of learning activities. Teachers should define the learning activities of their courses so that the global workload of a group of students is balanced along the term or academic year. And students should manage their time and organise their work to efficiently achieve the learning outcomes. In this paper, we present a tool that assists both, teachers and students, in time management so that the new education paradigm can be successfully introduced. The paper also describes a first experience of the use of this tool and the conclusions of the pilot test.

## 1 INTRODUCTION

The Bologna Declaration was an initiative of twenty-nine signatory European states with the objective of making European higher education more compatible and comparable, more competitive and more attractive for Europeans and for students and scholars from other continents. Apart from this common goal, the Bologna Declaration establishes 2010 as the deadline when the European Space for Higher Education (ESHE) should be completed, based on a set of specified objectives:

- The adoption of a common framework of easily readable and comparable degrees,
- The introduction of a system based on two main cycles, undergraduate and graduate
- The adoption of the ECTS (European Credit Transfer System) as a compatible credit system covering lifelong learning activities
- Quality assurance, with comparable criteria and methods
- Mobility promotion for students, teachers and researchers by overcoming obstacles.

This implies important changes not only in the organizational aspects of the Spanish university system, but also in the pedagogical and methodological aspects of knowledge transmission.

The main difference is that traditional methods based on teaching must be substituted by new

methods based on learning. This means a significant decrease in the face-to-face instruction hours, which must be complemented with online learning and other alternative activities and methods. This approach is usually known as blended learning or b-learning (Marsh, 2003).

For the success of this pedagogical model (Picciano, 2008) in the context of the ESHE we have identified two key requirements: on one hand, students should be able to manage time and organise their personal work and, on the other, teachers should collaborate in scheduling the activities and tasks of their courses so that the global workload of the students is reasonably balanced along the academic year or term.

In this paper, we present the Academic Diary, a web-based tool to help both, students and teachers, to manage time in order to facilitate the adoption of the ECTS and the new education paradigm. This tool has three main objectives:

- To support students in their time and tasks management,
- To allow teachers and academic managers to analyse workload distribution along the term for every group of students, and
- To promote attendance to extra-curricular activities, such as conferences, seminars, forums, etc., by scheduling and integrating them in the Academic Diary together with other curricular events.

The next section of the paper analyses different Information and Communication Technology (ICT) solutions for learning support. Section 3 describes the main features of the proposed tool. Section 4 shows a practical experience of the use of the tool in a university course. Finally, the conclusions of the work are presented.

## 2 ICT FOR LEARNING SUPPORT

ICT systems have been introduced in the teaching activity since long. Examples of this are the use of slides and other multimedia materials to enhance learning experience in the classroom, electronic synchronous and asynchronous communication tools, like e-mail or chats or forums, the use of internet to search for and retrieve information, etc. (Tomei, 2003)

The major use case of ICT in education can be found in distance learning, where specific platforms have been developed to integrate in one single system the three basic components:

- Diffusion of materials (course material from teachers to students and task results from students to teachers)
- Communication (private conversations or public discussions, synchronous or asynchronous, collaborative work)
- Assessment of outcomes achievement.

These platforms, usually called Learning Management Systems (LMS) or Virtual Learning Environments (VLE), have changed the traditional distance learning into online learning or e-learning. One of the most popular LMS is Moodle (<http://www.moodle.org>), an open source system that is being used by more than a million education institutions around the world with the purpose of supporting and complementing face-to-face instruction.

In the last decade there has been a wide research initiative in the European Union promoting the use of e-learning platforms in universities as a support for the teaching and learning activities (Pls Ramboll Management, 2004).

Some of the more cutting edge research lines are t-learning (Baldi, 2006) and m-learning (Petrova, 2007), aiming to extend learning experiences to television and mobile devices; game-based learning (Aldrich, 2005), or virtual reality and 3D approaches to learning (Livingstone, 2005).

Within the scope of the SUMA project, we have analysed the desired functionality in a specific b-

learning tool and several new components have already been designed and developed. These components are connected to the LMS Moodle, extending its functionality to cope with the management of some elements specific to b-learning and face-to-face instruction.

In this paper, we present one of these components, the Academic Diary, and a pilot test in a university course.

## 3 A TOOL FOR TIME MANAGEMENT

The Academic Diary is basically a calendar that combines different types of events related to the academic activity. Users must be registered to use the tool, and every user has its specific set of events, depending on its role and the courses he is enrolled in. Apart from student, teacher and administrator roles (present in most learning virtual systems), the tool defines another role called academic manager.

This tool retrieves data from its own database, as well as from the LMS Moodle. All the events related to a course in Moodle are imported in the Academic Diary and shown to the corresponding teachers and students together with other personal or global events.

In the development of the tool we have used ActiveCalendar, a PHP Class that generates calendars (year, month or week view) as a HTML Table (XHTML-Valid). The source code is free. It can be modified or passed under the conditions of the GNU Lesser General Public License, published by the Free Software Foundation.

We have modified the design of this PHP class, changing the design using CSS (Cascade Style Sheets), modifying some of the functions of the Class, adding new functionalities in the insertion of events, creating the daily view and adding the navigation system in the weekly view. We have adapted the database for its use with PostgreSQL and adding new fields. To decrease loading times when showing the calendar or changing among the views, we have implemented AJAX functions, that asynchronously (using JavaScript) retrieve information from other files.

### 3.1 Roles

The presented tool distinguishes among three types of roles with different permissions. All of them are allowed to add, edit or delete personal events.

- *Students* can view all the events that are related to their courses, group, programme degree or those concerning the global university community.
- *Teachers* have the same permissions as the students in the Academic Diary. However, the tool retrieves information from Moodle, where the teacher can create activities (tasks, questionnaires, chats, etc.) or insert events in the calendar that will be displayed in the Academic Diary to the corresponding students.
- *Academic managers* have a more active role in the tool, being in charge of adding events that concern different users groups, like clases timetables, periods of vacations, extra-curricular events, etc.

### 3.2 Events

The tool manages four groups of events.

- *Personal events* are created by any user and can be seen, edited or removed only by the user that created them. They are intended to allow the use of the tool as a personal calendar as well.
- *Curricular events* are those related to a certain course, for example an exam, a deadline for task delivering or a change in the course schedule activities. These events come from Moodle, where a teacher introduces them, except comprehensive exams' dates, which are introduced in the Academic Diary by an academic manager.
- *Extra-curricular events* are related to other complementary activities that take place in the university context: conferences, seminars, sports meetings, forums, etc. They are introduced only by an academic manager, and may apply to all the users or only the students and teachers of a certain degree program, group or course.
- *Academic calendar events* signal periods of classes, periods of vacations, periods of comprehensive exams, and other official dates along the academic year. Only an academic manager can introduced them in the calendar, as well as the courses' timetables.

### 3.2 Views

The user can choose among three different views.

- In the *Month view* (see Figure 1) only the event type is shown. The rest of information is

displayed on an emerging block, when the mouse is placed on top of the event.

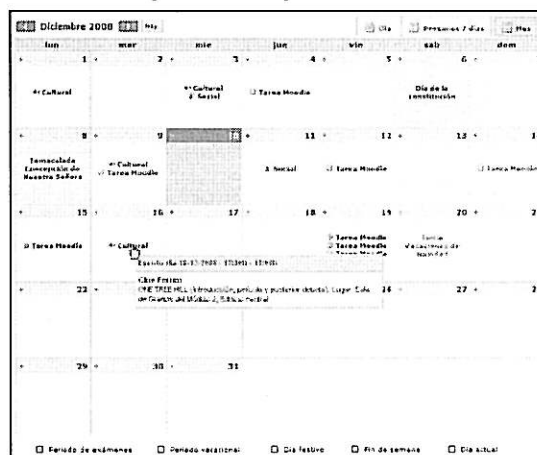


Figure 1: Month View.

- The *Weekly View* (see Figure 2) is the default view. It only shows the next 7 days starting on the present date. For every event, its name and start and end time or duration are shown. Each type of event is differentiated by the background color. If we place de cursor on top of an event a more extended description is displayed. When we click in a day the tools changes to the corresponding daily view.

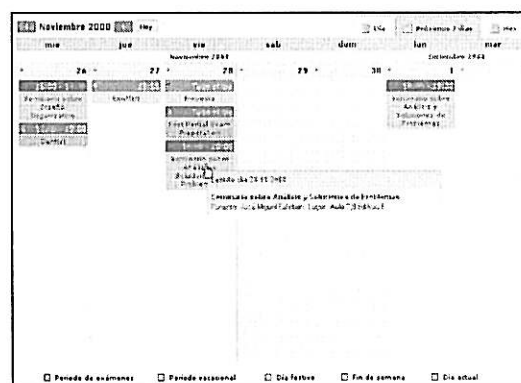


Figure 2: Weekly View.

- The *Daily View* shows all the information of the events of the corresponding day. It also allows users to delete o edit their own personal events.

In all the views, the navigation and insertion of personal events are possible.

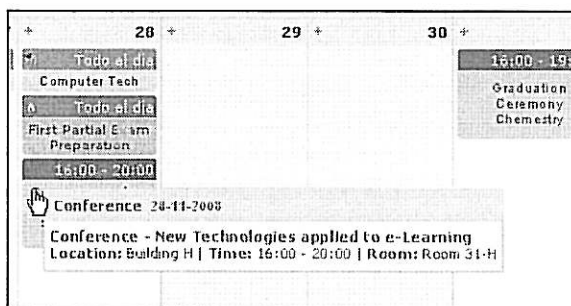


Figure 3: Detail of Weekly View.

## 4 PILOT TEST

A pilot experience is being now performed to check the feasibility of our approach. In this section we describe the main goals, framework and analysis methodology used along the experience.

This research activity is carried out within the scope of a wider initiative at the Universidad Francisco de Vitoria. It aims to improve learning processes by using IT in the academic environment accordingly to ESHE specifications and requirements.

### 4.1 Project goals and breakdown

The pilot test focuses on using the Academic Diary Tool under real conditions and fully exploits its possibilities as an element of a b-learning platform.

Since ESHE impose a looser and more independent learner-teacher relationship we considered a primordial need to help them planning face-to-face and homework assignments, scheduling deadlines and live sessions.

An additional functionality is to provide students with a supporting tool to keep them in contact with course and university activities.

Finally, Academic Diary can also help teachers to organize and equally distribute homework assignments so avoiding overloads due to the concurrence of several activities over the same time period.

The development of the pilot test fits the following work breakdown structure:

- Design and planning of the pilot course
- Customization of the b-learning tool accordingly with users requirements
- User (teachers and students) training

- A pre-course on-line survey to collect information about study practices and attitude towards IT technologies
- Pilot course
- A post-course on-line survey
- Personal interviews with teachers to collect their impressions
- Analysis of data collected (surveys, interviews and information provided by the tool).

## 4.2 Operational framework

Pilot group is made up of 25 students of Excellens, a bilingual program that combines two undergraduate studies (Law and Business Administration) plus a grade in Professional Leadership.

The pilot experience has been planned within the first term of 2008-2009 academic year. Seven modules, belonging to different fields of studies will be included in the experience.

Teachers' information management (events, tasks, news) is carried out by a group manager.

As far as students are concerned, Excellens requires full dedication and a personal compromise as there are plenty of out-of-program activities designed for students to get a rich academic and vital experience. People in this workgroup require good time and task management techniques and tools. Class assistance is almost 100% as it is mandatory in order to be included in continuous assessment process.

## 4.3 Results

### 4.3.1 Pre-course analysis

The pre-pilot test survey shows a student profile characterised by a high concern about time management. Some significant data are: 90% of the students declare to be aware of how they use their time, 70% design a plan for their activities and 70% have an appointment calendar and use it on a regular basis.

Following this line, 8% of the group considers that their schedule is overloaded mainly because: 1) amount of work proposed by teachers (50%) and 2) low task coordination among teachers (85%)

All the students are experts and heavy Internet users, but only 70% has Internet access at home. They have a low profile as far as computer knowledge is concerned but again they are heavy users of new communication technologies.

Finally, almost 90% of them recognize not to have previous knowledge of what ESHE and the ECTS imply.

On the contrary, teachers profile is quite assorted in reference to field of study and computing knowledge. Their knowledge of what EEHS means is quite high. The entire group is aware of the need of changing accordingly to ESHE proposals. They also know about the consequences of overloading students with an incorrect task distribution. Their experience with internet or IT support is rare and the needed special training courses to get acquired with the b-learning platform.

### 4.3.2 Workload distribution analysis

One of the main activities of this pilot experience has been the analysis of students' workload along the term.

To calculate working hours it is necessary to previously estimate the face-to-face/autonomous work time ratio for each learning activity. Autonomous work is devoted to resolve exercises, prepare notes, documents or oral presentations, study for exams, etc.

The following table shows the ratios defined, by general consent, by the different teachers that collaborate in the project. These ratios may vary, however, from one discipline or module to another.

Table 1: face-to-face/autonomous work time ratio.

Activity	Ratio
Lectures	0,5
Seminars	0,25
Cases study	2
Discussions	1
Homework (group/individual)	3
Labs	0,5
Tutorship	1
Extra-curricular activities	0
Exams	10

Figure 4 shows the number of working hours per week (October-December period) for a common student. Blue bars represent face-to-face hours while red ones show autonomous work, as deduced from the activities planned in the Academic Diary.

Some conclusions can be obtained out of this graphic:

- 1) Total working hours per week exceed the desired one (40 hours/week)
- 2) Activities distribution over time is not well done as heavy peak loads can be appreciated
- 3) Hours of autonomous work are not directly proportional to the amount of face-to-face hours

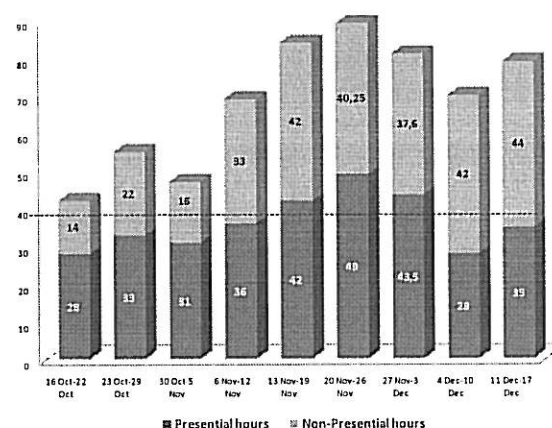


Figure 4: Working hours per week.

Figure 5 shows an analysis of student's time distribution per activity (Exams, extra-curricular activities, tutorship, labs, homework, discussions, cases study, seminars and lectures), along the same periods considered in Figure 4.

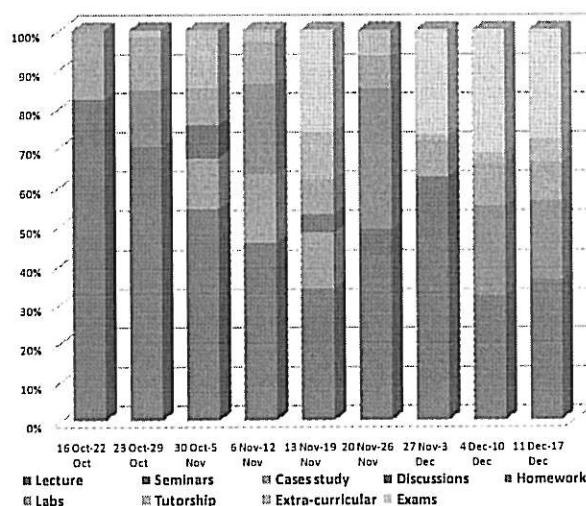


Figure 5: Student's time distribution per activity.

This analysis (considering the activities of all courses the students are enrolled in) shows how the number of different activities increases as the term goes by, so requiring a better and tighter



coordination, like the one the proposed tool can provide.

### 4.3.3 Post-course analysis

As the pilot test is still going on, there is no student feedback yet. However, preliminary interviews with teachers allow us to draft early conclusions of the study.

General evaluation is good both, as a tool for better planning course activities as well as a way to approach and increase their knowledge of the ECTS concept and its consequences in the academic activity.

The Academic Diary helps teachers to organise curricular and extra-curricular activities so avoiding peaks of workload. When planning an activity, they can take into account the ones proposed by their colleagues, thanks to the information provided by the tool, and make better decisions in relation to the activities scheduling.

## 5 CONCLUSIONS

B-learning requires IT support to enhance the experience of the student as a member of a learning community under the model of the incoming ESHE where autonomous work is encouraged out of the physical space of the classroom. The Academic Diary proves to be an adequate tool to support learning and teaching requirements under ESHE paradigm, allowing teachers to analyse the workload of students, and promoting a collaborative organization of the learning activities among all the teachers of a group. This will be a key factor in the success of the adoption of the new education paradigm.

The analysis of the information provided under the Academic Diary paradigm has been the starting point for some teachers to propose new directions of future work, as follows:

- 1) Building of multidisciplinary activities combining requirements of several disciplines in order to reduce students' workload.
- 2) Assignment of new task to students taking into account the number and type of other concurrent tasks.
- 3) Decreasing of lectures with a concomitant increase of other methodological approaches.

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## REFERENCES

- Aldrich, C. (2005). *Learning by Doing: A Comprehensive Guide to Simulations, Computer Games, and Pedagogy in e-Learning and other Educational Experiences*. Pfeiffer. San Francisco, CA.
- Baldi, M., De Santis, A., Falcone, D., Gambi, E., Spisante, S. (2006). A T-learning Platform based on Digital Terrestrial Television. In *International Conference on Software in Telecommunications and Computer Networks*. Croatia.
- Livingstone, D., Kemp, J. (2007). Bridging 3D and web-based learning environments. In *International Conference of the Association for Learning Technology*. Nottingham, England.
- Marsh, G. II, McFadden, A., Price, B. (2003). Blended Instruction: Adapting Conventional Instruction for Large Classes. In *Online Journal of Distance Learning Administration, (VI), Number IV*
- Picciano, A., Dziuban, C. (2008). *Blended learning: research perspectives*. Sloan-C.
- Selim, H.M. (2007). E-learning critical success factors: an exploratory investigation of student perceptions. *International Journal of Technology Marketing*, Vol. 2 (2), pp. 157-182
- Petrova, K. (2007): Mobile learning as a mobile business application. *International Journal of Innovation and Learning*, vol. 4 (1), pp. 1-13.
- PIs Ramboll Management (2004). *Studies in the Context of the E-learning Initiative: Virtual Models of European Universities (LOT 1)*. Draft Final Report to the EU Commission, DG Education & Culture Virtual Models of Universities. Retrieved February 3, 2009 from [www.elearningeuropa.info/extras/pdf/virtual\\_models.pdf](http://www.elearningeuropa.info/extras/pdf/virtual_models.pdf)
- The Bologna Declaration (1999). Retrieved February 3, 2009 from <http://www.ond.vlaanderen.be/hogeronderwijs/bologna/>
- Tomei, L. (2003). *Challenges of Teaching with Technology Across the Curriculum: Issues and Solutions*, Information Science Publishing, London.