

# SUPPORTING EDUCATIONAL PROCESSES IN ACADEMIA WITH A COLLABORATIVE CONTENT MANAGEMENT PLATFORM: LONGITUDINAL IMPLICATIONS IN EDUCATION, ADMINISTRATION AND SOCIAL LIFE

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## **Abstract**

The paper presents empirical knowledge concerning administrative, educational and social implications from the adoption and widespread use of a collaborative content management platform that supports educational processes in the Department of Product and Systems Design, University of the Aegean, Greece.

## **Introduction**

During the last 15 years, the use of ICT (information and communication technologies) and the Internet in education has dramatically increased. A new landscape is emerging that brings academic institutions in front of major challenges in every aspect of the educational process. The adoption and use of technology has resulted in changes to administrative processes, decision making and organizational design. In the university sector, ICT has already made an important impact in terms of teaching, research or administration (Carnoy, 2004) promoting cooperation regardless of geographical or time boundaries. Content management systems can be used not only to publish and maintain course content electronically, but perhaps more significantly, to help coordinate the use of learning objects across disciplines or levels and to tailor content to meet individual student needs (Acker, 2002).

In Greek Academic Community, the e-Class platform constitutes the proposal of the Academic Net (GUnet) for supporting Asynchronous Tele-education as a complete collaborative content management system. The platform GUnet e-Class is an open source software distributed free of charge and it is being used almost by the total of Greek Academia supporting a huge number of courses with thousands users. E-class has been adopted by about 30 institutions which use the ICT in order to electronically organize, store and present their educational material creating the conditions of a dynamic educational environment.

The University of the Aegean (UA) is a unique Institution in Greece but also in entire Europe regarding its geographic dispersion. The University Units (five Schools and sixteen Departments) are located on five different islands in the

Aegean Sea thus making the UA a pioneer University-Network. Experiences gained both from the operation of academic departments on border islands and the communication within a University-Network have led the UA to be the first Greek Academia that has been fully utilizing ICT into its everyday activities, and thus implementing the Information Society in Greek higher education.

The Department of Product and Systems Design (DPSD), located in Syros Island since 2000, provides one graduate studies program and two post-graduate (MSc) programs. The DPSD is one of the few departments of the UA that have adopted and successfully use the e-Class platform along with other ICT. Along with e-Class, DPSD uses as well other institutional and departmental systems that amplify networking possibilities such as Library web site, NOC web site, DPSD web site and Student card database.

The aims of the paper are to present the educational, administrative and social implications of the adoption and use of an academic content management platform in educational processes in a medium-sized academic department and to identify service enhancements that can address concerns that have arisen so far. The paper reflects the experiences of a continuous 5-year adoption and use of a collaborative content management system in academic education.

## **E-class overview and usage**

### **E-class overview**

In DPSD, e-Class supports a total of 140 courses:

- 91 courses of Graduate Studies (5-year B.Eng. diploma): Product and Systems Design Engineering.
- 12 courses of the Post-Graduate Studies Program (M.Sc.): Design of Interactive and Industrial Products and Systems
- 15 courses of the Post Graduate Studies Program (M.Sc.): Holistic Alternative Therapeutic Systems - Classical Homeopathy
- 22 other group spaces concerning research projects and theses under development.

By logging in users can edit their account registering in courses they attend. The Electronic Course constitutes the main axis of e-Class and every course is an autonomous entity incorporating a series of subsystems organized and administrated by the educator as shown in Figure 1. By registering in a course, students and professors have access in its subsystems: Agenda, Documents, Student's projects, Announcements, User Groups, Exchanging Folders, Course Description, Users and Links. It's up to the educator of the course to decide which of the subsystems will be enabled (i.e. visible to the students).

More specifically, about the subsystems of e-Class:

- The Agenda subsystem allows students to watch with chronological order fact stations of course (lectures meetings, evaluations, etc).

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δίκτυο εκπαίδευσης

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**Figure 1: E-Class platform-course's interface**

- The Documents constitute the space where the educational material of course is stored, organized and presented. Here can be found available texts, notes, presentations, pictures, diagrams, etc that concern course through a system of lists and sub catalogues.
- The Student's Projects constitutes a very useful tool of the electronic course allowing the electronic submission and marking of projects. More specifically, it provides the possibility in registered users to upload their projects in the platform where they will be evaluated by the educator.
- Announcements allow the briefing of registered users in subjects that concern the particular course allowing professors to send to statements with electronic post.
- User Groups allow the collaboration and the interaction between the students of a course by letting them share the same region of discussions as well as the same region of transshipment of files and projects.
- In the Exchanging Folders students and educators are able to exchange useful material.
- In Course Description, the student can find useful information about the course ID, its goals and its educational content and the way it is evaluated as well as anything else the educator considers important.
- Last, Links gives the possibility of access in useful internet sources.

### **E-Class usage**

E-class is fully operational in DP5D since the beginning of the academic year 2003-2004. Most educators and all active students have adopted and use e-class on a daily basis. Most of educators are young at age with good computer literacy, which has resulted to the widespread adoption of e-class. However the platform's potential has not been fully exploited. In some cases the content seems static with few of educators still preferring traditional modes of communication and a small minority using their www pages instead of e-class. More specifically, out of 37 educators:

- 26 educators have adopted eclass to some extent to support their offered course (70.3%)
- 2 educators have not adopted eclass but are using their personal web pages to offer course material (5.4%)
- 9 educators have not adopted eclass at all (24.3%)

The total number of students enrolled in e-class is 692; this number includes undergraduate and MSc students as well as graduates that have maintained their accounts so that they have access to course material. The number of unique visits per day differs significantly along periods: high activity is observed at the period that is close to the exams, normal activity is throughout the academic semester and low activity is in summer holidays. More specifically:

- Exam period – high activity: > 300 hits/day
- Academic semester – normal activity: ~150-230 hits/day
- Summer holiday season – low activity < 30 hits/day

The total amount of course data for all courses is approximately 26 Gbytes, which is of course a fairly manageable amount for data for a normal PC.

## **Longitudinal implications of E-class adoption and use**

### **Education**

IT can be integrated into education and corporate training in two different but overlapping ways: by transmitting content and by supporting communication between professors and students, or among students (Benbunan-Fich, 2002)[1]. By lifting geographical and time constraints, e-class provides a common virtual space for maintaining awareness about courses and finding out essential information. In such a space, educators are able to enrich their course material with multimedia content replacing the traditional printed material. The practice of course management is now open, paperless and much more flexible living the students responsible of their own learning process and their knowledge construction.

Having an online platform available 24hours a day creates constant availability of educational content that exists beyond scheduled lectures and office hours. Accessibility and availability of CMC (Computer-Mediated Communication) augments interaction among learners, teachers and content (Tu, 2000). Announcements via mail and course notifications that come directly from the educators overcome time and space barriers accomplishing administrative activities with no intermediates and crucial time losses. Moreover, CMC technology leads to a greater number and variety of people participating as information sources (Kreijns et al, 2003).

Another important implication of e-Class adoption comprises the support of online submission and reviewing of students' projects. Once again, the networking possibilities change the traditional reviewing methods releasing trainers and trainees from the need of face-to-face (f2f) meetings.

Last but not least, e-Class subsystems provide tools for online student collaboration. By accessing other peers and interacting with them in a common space, students are able to create files online, change, manage and exchange them in order to fulfill the course's group projects requirements.

### **Administration**

The adoption of CMC technologies is breaking down the traditional hierarchical structure of organizations creating a new, more flexible structure (Tu, 2000). Therefore, at the administrative level, the educator is now the only responsible for managing the academic aspects of the course including uploading of content, publishing announcements and issuing notifications. The integration of e-Class with other departmental systems and services has amplified the networking possibilities in internal and external communication reducing their informational gap.

In addition, eclass as well as other ICT infrastructure has lead DPSD to remarkable economy savings mainly in materials but possibly staff. Using online services and by shifting considerable clerical work to professors and students, the administrative costs are much less than before. The communication costs have been reduced and so did the material costs as students now print only when needed. Moreover there is no need for dedicated photocopying equipment and personnel.

As a result a great need for constant e-Class administration along with the other informational services is emerged. The platform needs to be 24/7 available supporting the department's procedures as an interruption on communication services can create a series of problems in every sector.

### **Social life**

The interconnectivity e-Class provides increased student's independence enabling them to set their agendas more autonomously. Students benefit from online services and the flexibility that emerges from its adoption with the consequence that a large number of them leave and can now cope on their final year away from Syros to develop their thesis.

Working from home brings new challenges as well as benefits. E-Class makes it possible for educators and students to meet up without a need to meet f2f leading to considerable reduction of study costs for students.

On the other hand, the use of CMC introduces barriers not present in f2f meetings, including delays in asynchronous responses and failure to develop the details of a conversation on electronic media. Therefore, f2f meetings are still required as professor-student relationships are often still rooted in standard work arrangements and the absence of physical appearance can cause misunderstandings and delays. Furthermore, coping away from campus often leads to social isolation. Students loose contact with colleagues along with all the advantages such an interaction can offer.

## **Possible extensions of E-class to better support educational processes: Towards an online departmental information service**

Possible extensions of E-class include:

- *Teleconferencing and tele-education* functions that can provide a more dynamic educational environment emphasizing in forms of cooperation where physical presence and f2f meetings are not necessary.
- *Enhancing the support for student assessment and feedback* in order to augment interaction and collaboration, to decrease the load of exams correction, and to make knowledge delivery more effective.
- *Unified support for course management involving educators and administration* towards a better idea of the educational system as internal communication can decrease transactional distances.
- *Adding information services for students* such as bulletin boards / forums to improve opportunities for collaboration and decrease of social isolation.

### **Summary and conclusions**

The adoption of ICT in academic institutions leads the education process into new forms in every aspect; administration, management, teaching. E-class is a powerful tool that successfully supports and amplifies the informational services of DPSD as it constitutes a collaborative content management platform. Implications of its use can be seen in every aspect of the department's function affecting students, educators and administrators bringing them in front new possibilities of cooperation and collaboration that could not happen before. The paper presented an overview of these implications, which will be further identified and developed in terms of a longitudinal study that is currently taking place in the department.

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