

## CREATIVE AND DYNAMIC REUSE OF THE RESOURCES INTO A COLLABORATIVE LEARNING ENVIRONMENT

Florin POSTOLACHE<sup>1</sup>

<sup>1</sup>"Mircea cel Batran" Naval Academy, florin.postolache@anmb.ro

**Abstract:** *Computer assisted learning, e-learning, on-line learning, web based learning, virtual learning, open learning are different forms of educational ICT implication techniques, based on web, in a continuous increasing. Integration of technology (IT) into the university classrooms provides abilities to effectively communicate one student's ideas to communities who may have different background knowledge. A Collaborative and Learning Environment (CLE) platform, represents a Learning Management System, a Research Collaboration and Project Collaboration System and also an e-Portfolio Solution which creates an open academic environment in order to deliver Accessibility, Features, Tools and Functionality to the participants, in accordance with IMS Global Learning Consortium and other industry standards. The aim of this paper is to highlight the manner in which the formal communication, along with informal communication can contribute to student motivation to initiate his affective and intellectual resources (knowledge, skills, emotional management, etc.) in order to solve key-situations embodied in different learning tasks. At the level of the CLE Platform, the formal and informal communication participates in optimizing message reception, contributing to underlining the learning motivation, at obtaining proficiency and forming professional and transversal competences. Thus, between instructors and students there are developed partnership relations, which lead to increasing the student's learning motivation. In this sense, OCW and OER sites and also, the intercultural exchanges between participants fully contribute to the completion of MOOC Concept (Massive Open Online Courses).*

**Keywords:** *Collaborative Learning Environment (CLE), Learning Management System (LMS), e-Learning*

### Introduction

The Sakai Project began through a collaboration involving the University of Michigan, Indiana University, MIT and Stanford University. Danubius Online, a Sakai based software, is a set of software tools designed to help instructors, researchers, and students create websites for collaboration and is part of the Sakai Project ([www.sakaiproject.org](http://www.sakaiproject.org)), an R&D project for creating open source collaborative tools for use in learning, research, and other types of distributed group work. A strategic priorities in Teaching and Learning Fields (T&L) emphasize the importance of improving the quality of teaching and learning. The T&L priorities are particularly salient, given the acknowledged challenges and the critical importance of an excellent reputation for education quality in the marketplace and is oriented towards the needs of teachers, instructors, researchers, collaborators, instructional technologists and user support. It encompasses a broad range of topics, including sharing best practices for teaching and collaborating; asking, answering and demoing how various tools and capabilities work; discussing end-user support materials (e.g., documentation, training, tutorials); connecting with users with similar interests and needs, supporting

long-term collaborative efforts, individual projects, and just-in-time teaching, learning and assessment issues.

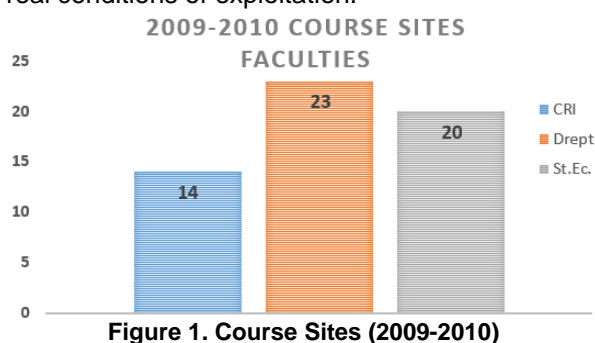
### The startup

Hiltz and Turoff (2005) argue that we are undergoing a process of full evolution, Daniels (2009) lists the web based education, Lorenzi, MacKeogh and Fox (2004) analyze the pedagogic aspects, Veglis (2005) compares the commercial software products and open source products, Andreica (2009) presents the creation of an integrated formation system represent some of the many published studies regarding the use of ICT in higher education.

After the survey concerning the LMS platforms, a comparative study was made in 2008 regarding the existing LMS platforms reported to the needs of the university and after comparing the advantages offered by these, it was decided the implementation of the Sakai learning platform, developed since 2004 by renowned universities from America. It followed a probationary period of 6 months in which there were tested the Sakai CLE incompatibilities with the operating systems and implicitly with the hardware platforms. Also, there were created several test sites of course where the participants could experiment and use the tools provided by the collaborative

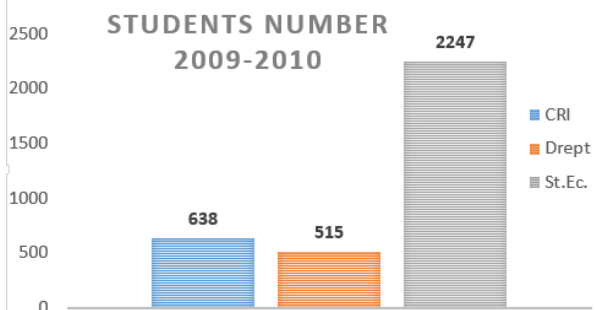
environment. After the probationary period, the conclusions where were reached were in the favor of starting the pilot phase, thus it was decided the formation of the T&L workgroup. A particularly role in the positive scoring of the collaborative environment Sakai had and that we are active members of the Sakai community and Opened Practices community – A community to practice for teaching and learning with open/community – source tools<sup>1</sup>.

In the academic year 2009 – 2010, was put in service in pilot phase the Danubius Online (DO) portal with a relatively small number of course sites (Figure 1) both of license and of master, the main objective being to gain usage experience in real conditions of exploitation.



**Figure 1. Course Sites (2009-2010)**

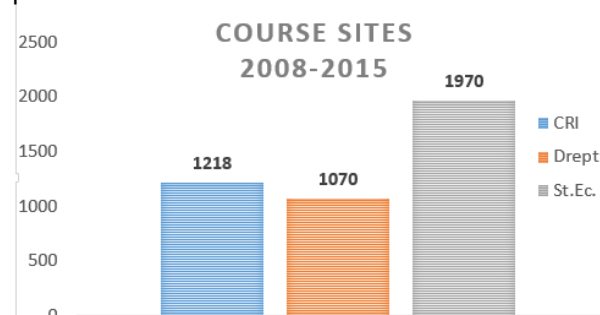
There were conducted with the students (Figure 2) from all forms of learning (day, ID, LFE) all the activities relating to the courses sites: communication of discipline objectives, obligation if the students and calendar program of the activities, transmission of homework, receiving the homework executed by students, correction by the instructor (owner of discipline), reviewing of the works by the students and communication of the given grades; performance by students of some self-assessment tests given during the semester, with feedback from the instructor, providing by the instructor online consultation for students, conducting of discussions on chat or forum; online support of the exams from supervised rooms.



**Figure 2. Students' number involved (2009-2010)**

<sup>1</sup> <http://openedpractices.org/institution/danubius-university>

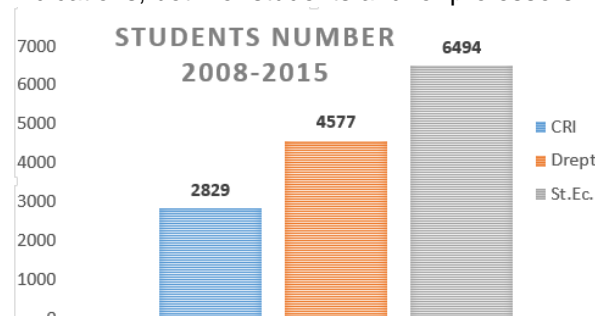
After the experience gained in the pilot phase, was decided to be proceeded to the stage of production.



**Figure 3. Course Sites (2008-2015)**

To this end, was significantly increased the number of course sites that operate on the DO portal, the trend being of generalizing at all the courses within the university (Figure 3).

There were introduced more ample using indications, both for students and for professors.



**Figure 4. Students' number involved (2008-2015)**

Most of these indicators are now accessible directly from the portal entry page. It also extends continuously the number of project and course sites (Figure 4).

#### **Educational, Collaboration and Site Management tools**

Educational tools like *Syllabus, Resources, Grade-book, Assignments, Tests and Quizzes, Forums, Chat Room, Conference, Glossary and Web-Content* are the tools used by the instructor (discipline titular) to introduce the students with the objectives and content of the discipline and the obligations they have in order to promote.

*Drop Box, Resources, Forums and Chat Room* tools mentioned above are actually collaboration tools that can be used not only for education of the course sites but also on the project and portfolio sites. DO portal offers the site designers other tools for collaboration like *Announcement, Messages, Conference, Podcasts, Pools, Wiki and Portfolio*.

These tools allows storing, editing, transmitting and publishing materials, announcements, multimedia content (audio and video recordings of

slide shows) on the course site and can be seen by all the members of the site but is possible that some announcements can be public so they can be seen by anyone with Internet access.

*Pools* allow the obtaining of votes of the site members regarding certain questions.

*Schedule* allows the creation of a calendar of the events on the site.

*Wiki* is a tool used by the members of the site to collaborate in order to create a documents presented as a list of inter connected web pages (a hypertext).

Management and My Workspace tools

There are also administration tools at the disposal of the site owner as well as at the disposal of the portal administrator. On the portals each user has a personal site (not shared with other people) named My Workspace. The user can create a personal file system and create a personal calendar using the Resources and Schedule tools mentioned above and can also use the following tools:

#### **Course Development:**

Course content was delivered internally as a standard lecture, and externally through traditional package but with a study guide. However, students from all forms of education were treated as one in the DO portal environment and have access to virtual courses (identical course content, the PowerPoint presentation and the laboratory practice). This combined approach helped students by making a bridge between different forms of education. In addition, teams are constituted of students from various forms of education, which is a real advantage in this pilot work environment. That each group has a local member who can always come to classes and also to illuminate any problems or technical training represent an advantage.

This mix of students with different life experiences take part in different courses and have the opportunity to work in a collaborative environment by encouraging mutual learning. Manner of interaction between students is through their group pages. Danubius Online enables a constructionist approach, on the fact that students have complete control of their group sites. Students decide how they are going to interact, when and with what instrument, the instructor overseeing the discussion only when necessary and also provide technical assistance. Taking control by students increased their participation according with the constructionist principle, where students control the learning modality.

#### **Course Delivery:**

The course is taught entirely on DO portal. Some students attend lectures and participate in

laboratory works, others only participate in those activities online. Both groups of students use the same tools and can work together.

The course delivery allows students to experience the support and shared responsibility of a community of learners. Throughout this course, students engage in the skills required for team work, apply their knowledge, utilise issues raised in their readings, enhance note taking, critically consider information and form arguments as well as resolve problem based learning activities. Resources in this course draw on a range of print and digital media.

In this course students participate in a combination of face-to-face and online activities. The face-to-face component of the course focuses on a range of collaborative learning activities.

We present below how they are used in our course the various tools of DO portal.

The first contact of students with the course site is done by Syllabus. Here they find the necessary information on the course objectives, obligations they have and how the course grade is calculated. An important tool in guiding students is "Tests & Quizzes". Each week students are provided with a formative assessment, with questions from chapters being taught. In these tests, very important is the given instructor feedback to each question, especially if the answer is not correct. Students who were not responded correctly can deepen the study and repeat the test, whenever they want. Test is anonymous and is not considered in the course grade. Instead, the instructor receives statistical information on student results, which is very useful in improving the course and tests. In addition to formative assessments, students receive during the semester three timed tests with questions randomly selected from a questions pool. Their role is to check continuity of study and the results are included in the course grade.

At the end of the semester, students are given the final timed test, with questions from all chapters. Each student has to prepare a project focused on an interactive website according to requirements. For this purpose it is used mainly the tool "Assignments" by which the instructor communicates with students. To improve communication, the tools "Messages" and "Drop Box" are also used.

Another widely used tool is "Chat". Office hours are scheduled weekly on chat by the instructors are provided to students. On Chat students defend their projects answering to the instructor's questions. Other students may see the discussion and they can interfere with their own remarks or comments.

### **Communication & Collaboration Evidence**

The unique strength of the communication and collaboration evidence for this course came in the form of community communication. We use all available resources to facilitate collaboration and learning concepts presented in classes and laboratories.

The blended learning approach to this subject stimulated high levels of student engagement and collaboration. The course required students to communicate through asynchronous and synchronous tools. Wiki, chat room, forums, and messages are used but with limited success. Weekly the students have an online consultation meeting with the aim of clarifying aspects of the course or laboratory perspectives. Also, the "Recent Announcements" area is used to warn students whenever is necessary. Each amendment to the course or the laboratory is done with an announcement, and automatically using message systems on iDanubius - a collaborative platform. Because of the integration of Sakai platform into Danubius portal, we can communicate with students using various tools, both during and outside of course.

Most importantly, the students demonstrated good teamwork and communication skills. Both student-to-lecturer and student-to-student communications developed quickly as the session progressed. We believe this to be a result of the blended learning approach where the students are also encouraged to use the tools at their disposal.

The debate postings are used extensively by students as they worked in small teams to form a winning argument. Students work collectively to succeed, while at the same time each have responsibilities and are accountable for his/her contributions.

Moreover, this fluid and flexible use of multiple technologies is not only generally valuable, but particularly relevant in a course about the role of technology in education. The ongoing class dependence on both DO portal and other technologies for out-of-class communication often leads to relevant conversations in class about how we are using technology in productive ways and how this relates to the theories and readings that we are covering.

Learning Material Evidence, Learning Outcomes & Assessment Evidence, Course Look & Feel, Web Usability Evidence and Learner Support Evidence are the key factor for success.

All of the course requirements, goals, and roles were presented in-person in the first course, in the online syllabus hosted within Danubius Online, and in the course "units" page that visually presents all of the information in one location to

help students easily navigate within the course as needed. Written materials and concepts discussed in the lab are always available and are comprehensible both in terms of structure and content. Each material clearly identifies and approaches concepts pertaining to the course components, the overall course structure and sequence, each lesson's structure and sequence, and course and lesson expectations.

Lecture and laboratory materials are well structured and easy to use. Courses are completed and discussed in classes, students talking freely about the concepts presented and misunderstandings are removed. In addition to the presentation used during the lecture, students can watch the online course. Laboratory hours are required and can also be tracked in an off-hour scheme because of their being recorded and posted.

All necessary information on how to access the course and resources is very clearly presented, students are notified when added to the course with tools provided.

All seven principles for good practice (Chickering & Gamson, 1987) were taken into consideration prior to the creation of the course and were successfully established.

### **Open CourseWare and Open Educational Resources technologies**

A Collaborative Learning Environment (CLE) creates an open academic environment in order to deliver Accessibility, Features, Tools and Functionality to the participants, in accordance with IMS Global Learning Consortium and other industry standards. Integration of technology (ICT) into university classrooms has become a major part of student-centred education. An important aspect of students' commitment in educational research is the capability to efficiently communicate their ideas to different groups or else to communities who may have outstanding background knowledge in the field at issue.

To grow valuable work experience in this kind of teaching, the students within this interaction will also cooperate between them, with teachers and also with the members of a different education course.

Therefore, when more and more educational institutions share their strategies regarding the new concepts of Open CourseWare (OCW) and Open Educational Resources (OER), these become topical discussions concerning the quality of acquired knowledge involving a significant digital publishing process in order to understand how to deliver the level of performance, scalability and availability needed to ensure success and

how to optimize and control the delivery of software.

The course sites that functioned in the university academic years 2009-2010 and 2010-2011 were well appreciated by the students because they significantly improve the communication between teacher and student in different ways (discussion forum, chat, messaging).

Efforts are necessary both for learning to use the ICT as well as for the theory of pedagogic methods specific to online education. Also, each teacher has to make systematic and daily efforts to maintain contact with the students on course

sites and offer them the necessary information and guiding.

The New York Times declare 2012 as "the year of the MOOC" and many universities scrambled to join in the "next big thing" where the existing linked groups including MOOC providers, the larger non-profit sector, related companies and venture capitalists offer services for more than 1.5 million registered people.

Starting from 2014, the platform has become a massive open online course (MOOC) where unlimited participants benefit and have open access to a various online courses via the web.

## CONCLUSIONS

The main educational strategy, which was on the basis for achieving the site, was collaboration and socialization among students. Class is made by 24 students. Being grouped by 3 for some assessments, students learn to work in team and each contributes to the assessment work. Teamwork is possible on iDanubius, a portal that allows design documents in collaboration.

The distance students felt they were actually being taught as opposed to buying a reading package. Those with life experience felt they were contributing something to society whilst still getting even more back.

Because laboratory classes are filmed, they ensure the possibility of accessing and viewing topics presented, providing an opportunity for recovery concepts and knowledge discussed.

Students are required to integrate their overall experiences, the knowledge gained from their reading and the digital media to the learning objectives and subject matter under investigation.

Students are provided with clear instructions regarding their responsibilities and also generate their own learning materials throughout the course. In such a constructivist approach to learning materials, feedback from both the lecturer and peers is very important. Development must be guided and is achieved online by comments entered either in the chat, messages, forum, wiki or blog. The instructor facilitates this process by providing students with a mixed mode of learning materials, different learning styles and students had the opportunity to learn through reading, writing, listening, discussing and reflecting upon content. Students provided positive feedback regarding learning materials when surveyed at the end of the course.

This exercise is quite helpful in giving students a sense of ownership, a clear vision of what the assessment criteria are and how all of this are conceptualized. Furthermore, the students often suggest new and unique ways for us all to engage with the assignment.

## BIBLIOGRAPHY

- [1] Andreica A., Design and Architecture of an Integrated E-learning Environment. Case Study on Babes-Bolyai University, Cluj-Napoca, Romania. In Research, Reflections and Innovations in Integrating ICT in Education, Proceedings of the m-ICTE2009 V International Conference on Multimedia and Information and Communication Technologies in Education, Lisbon, 2009, Vol.1, pp. 507-514.
- [2] Bri D., Coll H., Garcia M., Lloret J., Analysis and Comparative of Virtual Learning Environments. In 5th WSEAS/IASME International Conference on Engineering Education (EE'08), Heraklion, Greece, 2008
- [3] Florin POSTOLACHE, Andy PUSCA, Severin BUMBARU, SIMILARITIES AND DIFFERENCES REGARDING E-LEARNING CONCEPT BETWEEN INSTITUTIONS. DANUBIUS ONLINE- SURVEY CASE STUDY –The 7th International Scientific Conference "eLearning and Software for Education" - eLSE 2011, April 28-29, 2011, The "Carol I" National Defence University, Bucharest. pp. 426-431, ISSN: 2066-026X. <http://adlunap.ro/else2011/>
- [4] Florin POSTOLACHE, Mihaela POSTOLACHE, Alina Beatrice RAILEANU, T&L WORKING GROUP ON DANUBIUS ONLINE COLLABORATION AND LEARNING ENVIRONMENT – The 6th International Scientific Conference "eLearning and Software for Education" – eLSE 2010, Bucharest, April 15-16, 2010, The "Carol I" National Defence University. ISSN: 2066-026X. <http://adlunap.ro/else2010/>
- [5] Hiltz S.R., Turoff M., The Evolution of Online Learning and the Revolution in Higher Education. In Communication of the ACM, Vol. 48, No. 10, Oct. 2005, pp. 59-64.
- [6] Severin BUMBARU, Andy PUSCA, Florin POSTOLACHE, TEACHING WITH TECHNOLOGY: DANUBIUS UNIVERSITY CASE STUDY, The 2nd International Conference on „Institutional Strategic Quality Management in Higher Education"- ISQM 2010, 14-16 October 2010, Sinaia – Romania, ISBN: 978-

606-8154-11-4, pp. 55-64 <http://proiecte.aracis.ro/academis/promovare-diseminare-transfer/conferinte-internationale/>

[7] Viorel ARITON, Severin BUMBARU, Florin POSTOLACHE, CONTROVERSIAL ISSUES ON THE ADULT LEARNING AND SOME RELATED ASPECTS OF EXISTING LEARNING TOOLS, The 13th International Conference on "Interactive Computer Aided Learning" - ICL2010, International Association of Online Engineering (IAOE), September 15-17, 2010, Hasselt, Belgium; <http://www.icl-conference.org/icl2010/>

[8] <http://www.sakaiproject.org/about-sakai>

[9] <http://openedpractices.org/institution/danubius-university>

[10] <http://openedpractices.org/practice/teaching-learning-working-group-danubius-online>

[11] <http://openedpractices.org/course/introduction-computers>

[12] <http://online.univ-danubius.ro:8080/portal/>