

# Virtual Learning Spaces: Example of International Collaboration

Jadranka Lasić-Lazić  
Department of Information Sciences  
Faculty of Humanities and Social Sciences, University of Zagreb  
Ivana Lučića 3, 10 000 Zagreb, Croatia  
jlazic@ffzg.hr

Mihaela Banek Zorica  
Department of Information Sciences  
Faculty of Humanities and Social Sciences, University of Zagreb  
Ivana Lučića 3, 10 000 Zagreb, Croatia  
mbanek@ffzg.hr

Senada Dizdar  
Department of Comparative literature and Librarianship,  
Faculty of Philosophy, University of Sarajevo  
Franje Rackog 1, 71000 Sarajevo  
senadadizdar@gmail.com

Jasmin Klindžić  
Department of informatics  
Faculty of Humanities and Social Sciences, University of Zagreb  
Ivana Lučića 3, 10 000 Zagreb, Croatia  
jklindzic@ffzg.hr

## Summary

*Paper presents results of international university collaboration in developing virtual learning environment at the Faculty of Philosophy University of Sarajevo. Based on the success of the Omega system implemented at Faculty of Humanities and Social Sciences University of Zagreb collaboration in creating a similar virtual learning environment on Faculty of Philosophy University of Sarajevo has started. Results of the implementation of BISER e-learning system are shown. Special emphasis is put on the initial usage statistics as well as future development plans.*

**Key words:** Virtual learning environment, international collaboration, OMEGA system, BISER system

## Introduction

Development and advancement of information-communication technology has influenced all aspects of our everyday lives. One of the major changes happened in the communication process and information retrieval. This led to the emergence of two different user groups. On one side are users born in this digital environment based on internet and technology *colloquially* *millenials* or *digital natives*. The other group of users are *digital immigrants* or *baby-boomers*, born in the *old* times i.e. before the emergence of internet, who have gradually adopted developed technology. In today's educational environment, these two groups coexist and collaborate as teachers and students. Today's students (Prensky, 2001) represent the first generations to grow up with this new technology. They have spent their entire lives surrounded by and using computers, video-games, digital music players, video cams, cell phones, and all the other toys and tools of the digital age. This has forced educational institutions to change their policy and direct their research and action into creating learning spaces that will respond to the needs of today's users. Britain and Oleg (2004) in the excessive research two main motivators for ICT implementation in educational institutions:

- to enhance the quality of teaching and learning by allowing teachers to use pedagogies that are not possible with large numbers in a face to face environment;
- to manage the delivery and administration of programmes of learning as well as groups of students through an electronic (on-line) medium.

Research projects together with the advancement of ICT created a very strong e-learning community oriented towards improvement of educational process so that it corresponds the needs of gradually changing users. Although in the early stages the primacy of commercial solutions was notably present, developments in the open source sector and its affordability provided an opportunity for much larger number of institutions to get involved in research and contribute. Strengthening of the open source movement opened possibilities for wider collaboration and created an opportunity for a wider number of users and collaborators to get involved in the process creating quality learning spaces. Spread of affordable technological solutions enabled institutions with less financial backup and opportunities to get involved in the process of creating and further developing virtual learning environment. Furthermore, possibility of self-management system, as opposed to commercial service providers on which universities depended, attracted more universities to switch to open source solutions.

Nevertheless, developments in the information landscape and variety of new media and communication channels have created an abundance of digital materials impacting all aspects of educational process (teachers, students, library, administration etc.). Change of the library services, need for creation of repositories as collections of digital materials, organization of digital educational materials, user support, creation of various e-services like e-portfolios, etc. forced

universities to integrate these services and their virtual representations in form of virtual learning environments.

Creation of virtual learning environments as designed information spaces supporting the educational process was therefore the next logical step. Virtual learning environments present settings that encompass different static and interactive tools used in teaching and learning like: communication tools such as email, forums and chat rooms; collaboration tools such as intranets, electronic diaries and calendars; tools to create online content and courses; online assessment and marking; integration with management information systems; controlled access to curriculum resources; student access to content and communications. Research in usage of VLEs and its efficiency shows that while using VLEs student experience is being enhanced through improved delivery of teaching materials and course announcements, improved access to learning resources and better communication. (Britain and Oleg, 2004) Integration of various scattered services, tools and technical solutions under one comprehensive setting, such as virtual learning environment is fundamental for a successful and up-to date universities.

### **OMEGA – an example of best practice**

Successful implementation of the Omega e-learning system has started back in September 2002 under the project OIZEOO<sup>1</sup> funded by the Croatian Ministry of Science, Education and Sport. One of the project objectives was to investigate, evaluate and implement the best suited technical solution for creating virtual learning environment at the Faculty of Humanities and Social Sciences (FHSS) University of Zagreb. Our goal was not simply to create a self-sustained e-learning solution, but to implement or develop virtual learning environment that supports blended learning. Intention was to create a virtual representation which will provide support to our teaching staff and students in enabling blended learning. Goal was not to create purely virtual campus for distant learning but a solution that will support educational process in facilitating a shift from teacher-centered to student-centered learning. On the other hand it was to help us in dealing with the difficulties of overloaded schedule (problem of time and space).

After testing and evaluating both open source and commercial solutions decision fell on open source course management system Moodle which was then implemented in 2004. The fact that MOODLE is a free, easy-to-use system (i.e. everyone with basic computer literacy can easily use it) with simple and understandable interface was the main reason for implementing it. Furthermore, its large variety of modules and the ability of implementing new modules; SCORM

---

<sup>1</sup> OIZEOO - Organization of Information and Knowledge in the Electronic Learning Environment (Organizacija informacija i znanja u elektroničkom obrazovnom okruženju - <http://infoz.ffzg.hr/oizeoo>)

compliance; authentication via LDAP or IMAP (e-mail) user accounts issued by the Faculty; were a major advantage in choosing which product to implement in a large heterogeneous institution like ours is, bearing in mind the large number of staff not very familiarized with the idea of using ICT in their teaching. After translation and implementation OMEGA e-learning environment was created.

First stage of our implementation was to test the system on several courses held at the Department of Information Sciences. After positive user evaluation OMEGA (Figure 1.) was ready to extend on other Department, integrate more courses and users (teacher and students) and start functioning as FHSS virtual learning environment. In October 2006, there were 20 departments offering their courses through OMEGA with total number of 180 courses, more than 170 professors and TAs working on their courses and more than 6 GB of produced learning and teaching materials. Now in August 2009 numbers have grown and we have 24 departments with total number of 5000 users out of which 245 are professors and TAs working on 597 courses and more than 63GB of produced learning and teaching materials. As one can see, the number of courses, data, professors and students has largely increased and we expect them to grow even more until we have all the courses and students signed in this VLE.

The screenshot displays the Moodle VLE interface for a course titled "Klasifikacija i klasifikacijski sustavi". The interface is in Croatian. At the top, it shows the course name and a login status: "Niste prijavljeni sustavu." (You are not logged in to the system). Below this, there is a navigation menu on the left with various tools like "Glavni izbornik", "Vijesti", "Omega", "Opsežne upute za predavača", "Zahtjev za novim kolegijem", "Kviziove FF", "Web FEZS", "Google scholar search", "Wikipedia", "MOODLE hrvatski prijevod", "Online baze podataka", "Katalog dostupnih elektroničkih časopisa", "Keramički online (u zadnjih 5 minuta)", "Nataša Pavlović", "Nikolina Špoljar", "Mia Tomljenović", "Jasna Turković", "Boris Vidaković", "Dijana Sanković", "Tonko Pezović". The main content area is divided into several sections: "Dobro došli na stranice sustava učenja na daljinu Filozofskog fakulteta Sveučilišta u Zagrebu, ostvarenog u sklopu projekta OIZEOO Ministarstva obrazovanja, znanosti i sporta", "Najbolje preporučujemo korištenje Mozilla Firefox internet", "OBAVIJEST: Mogućnost mijenjanja avatara (slika u osobno)", "Popis kolegija" (listing subjects like Anglistika, Antropologija, Arheologija, etc.), "Weekly outline" (listing forum topics like "Forum: obavijesti i rasprave", "Literatura"), and "Administracija" (listing settings like "Turn editing on", "Settings", "Group roles", "Groups", "Enrolment"). A calendar on the right shows the current date as "Objed. 2007".

Figure 1. OMEGA VLE

Currently, we are using Moodle v.1.9 with the Croatian language interface and some other minor modifications and customizations, based mainly on end users' requests or needs. Comparing Moodle module usage statistics (Table 1.) over the three year period constant progression is clearly seen.

Table 1. Omega module statistic

Module	2006	2009
<i>Resource module</i> (text, html, PDF ... etc.)	3,071	12,760
<i>Forum module</i> <sup>2</sup>	436	905
<i>Assignment module</i> (students can send them online, offline or via document upload, making the paper submission and grading both easy and transparent)	298	1,131
<i>Quiz module</i> (online quizzes with numerous capabilities - random questions, timed sessions, question databases, variety of question types, access control etc.)	212	358

Apart from this four, now widely used modules progression in usage of other modules has also happened. Noticeable growth has happened with the following modules:

- question module – consists of only one question, usually used for immediate response in class - 201 instances
- dictionary module – can be done by teacher but also collaboratively by students and teacher - 93 instances
- lesson module – set of connected html pages with a question at the end of the path and possibility of choosing the path of learning - 52 instances
- wiki module – 47 instances

Thanks to the modular and open-source nature of Moodle, the teachers can use only those modules that they really need at the present time, and if they need some additional type of resource or activity, it can be easily implemented (sometimes in the matter of hours).

We can say that we have the largest single Faculty virtual learning environment at University of Zagreb and in Croatia. Strong Moodle movement that was initiated at our Faculty influenced other higher education institutions to implement Moodle. Currently, the largest Faculties in Croatia are favouring Moodle and the total number has grown up to 25 higher education institutions (faculties and colleges). Still new implementations are emerging. One of the factors of such an outspread is the fact that our Croatian language package was made available on the Moodle site as our act of giving back something to the e-learning community.

<sup>2</sup> Since there can be more than one forum on the course, and the access to the forums can be customized easily, the teachers are using them both for communication with student body and among themselves.

## BISER implementation

Success of Omega e-learning system was recognized by the Faculty of Philosophy in Sarajevo and after several meetings collaboration on creation of similar VLE was initiated. The main objective was to improve the quality of teaching and create a virtual learning environment. As well as many European universities, so has University of Sarajevo passed through curricular reform and its adjustment with European Credit Transfer System. It was perceived that the successful implementation and regular usage of VLE could improve the performance of high-quality curricular programs.

Implementation started in February 2009 and Department of Comparative literature and librarianship courses were chosen as a test bed. Due to the lack of high quality ICT infrastructure at the Faculty we have agreed to support the whole system through FHSS server located in Zagreb. New learning environment was named BISER (Bibliotečki Sarajevski Elektronski Repozitorij) meaning *Sarajevo librarian electronic repository* (Figure 2).

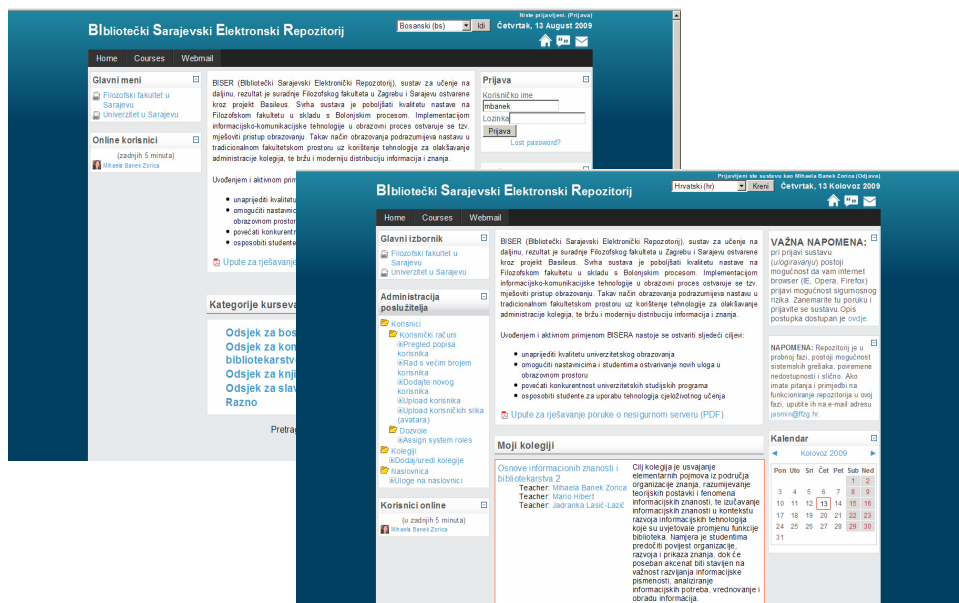


Figure 2. BISER virtual learning environment

The first phase of the project was to install the software on server and create test courses that would serve as an exemplary for both teachers and students. After the introductory presentation for both teachers and student, due to the more complicated interface and numerous possibilities that the system offers, we have organized separated workshops for teachers. Next step was organization of several courses to be held in spring semester. Part of the courses was or-

ganized in a similar mode as the ones organized at our institutions while the other part was left for teachers to explore and improve on their own pace.

### Biser usage statistics

Although this is relatively new system and there is a need to spawn its usage on the other Departments, with the ultimate goal of being accepted by the whole Faculty, initial positive evaluation of the system can be seen from the statistics. Currently, in August 2009, there are 142 student users, 19 teachers and TAs organizing 28 courses. Majority of used modules are: resource module - 166 instances; forum module - 43 instances; assignment module - 22 instances; and chat/dictionary/choice module - 4 instances. Usage of the modules is typical for such an early phase when users are still experimenting with the system but we expect a growth in all modules and user during the next academic year.

Interviews with the student showed satisfaction with usage of the system and improvement in their educational space. Usage statistic (Figure 3.) shows that students have regularly accessed the system during the semester and until the end of exam period (July 2009). Numbers represent a good indicator for the Biser success but there is still much work to do.

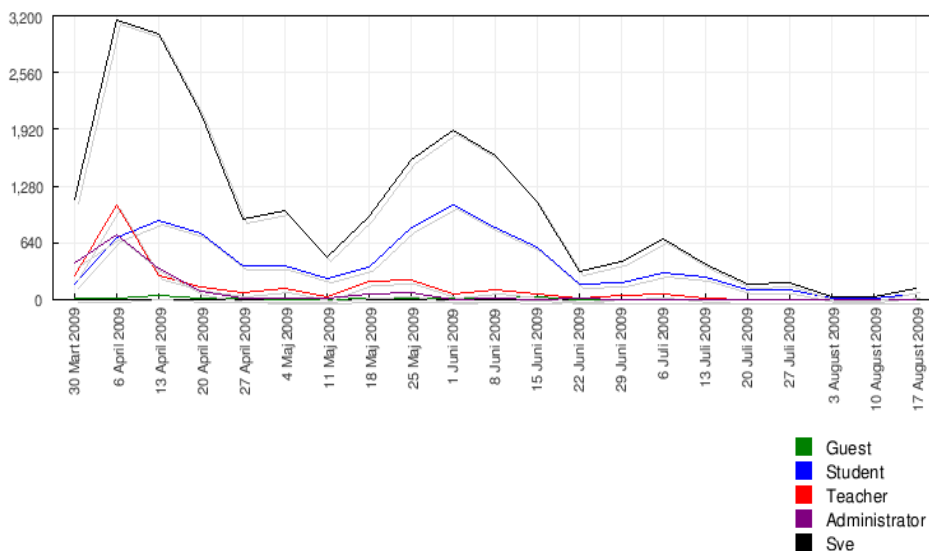


Figure 3. Usage statistics

Current total number of data is 700mb. At the first glance it might seem small, but one should bare in mind that policy regarding upload of data is taken form FHSS's Omega. Recommendation for teacher is to keep in mind the duplication of data i.e. not to put the actual files on system if they exist on web or in library

and could be accessed by students, but rather to link them. It is necessary to emphasize that the system should not be overwhelmed by the excessive data that can be found on the web or in the library. Successful VLE should integrate all supporting elements of the educational process i.e. library and educational materials. Therefore, second part of the project will be to create a digital repository of learning materials based and managed by the faculty library. Collaboration with faculty library will be necessary for creating and managing sustainable digital repository of learning materials.

### **Conclusion**

The technology has brought changes in society which started the transformation of the educational environment and sets of educational reforms that European universities are undergoing. Implementation of new technology in the traditional environment resulted in creation of virtual learning environments and change of modes of teaching from traditional teacher-centred to a student-oriented research based learning enhanced through the usage of technology.

Implementation of ICT in various discipline related environments does not result in same success. Baring in mind that within the humanities and social sciences the benefits of e-learning applications show lower rates of acceptance, which is mainly caused by prevailing traditions of teaching the respective subject, and the considerable pressure from within the university, particularly from part of the staff, to preserve the status quo, the popularity of OMEGA as a faculty-wide VLE seems surprising. The reason for the positive attitudes could be explained through the phenomenon of blended learning, which does not require a complete break-up with traditional learning but the complementary application of the traditional and technological paradigm.

Driven by the positive results of the implementation of technology at Faculty of Humanities and Social Sciences, University of Zagreb a project of creating VLE Faculty of Philosophy in Sarajevo has started. Initial results, implementation on only one Department, show user satisfaction presenting a good foundation for expanding BISER on the other Departments and creating a unique Faculty-wide system.



## References

- BISER: Bibliotečki Sarajevski Elektronski Repozitorij <http://biser.ffzg.hr/> (20.8.2009)
- Britain, S. Liber, O. A Framework for the Pedagogical Evaluation of Virtual Learning Environments. [http://www.cetis.ac.uk/members/pedagogy/files/4thMeet\\_framework/VLEfullReport](http://www.cetis.ac.uk/members/pedagogy/files/4thMeet_framework/VLEfullReport) (20.8.2009)
- Lasić-Lazić, J. Banek Zorica, M. Špiranec, S. Klindžić, J. Using Open source Learning Management System for educating information professionals // *Current Developments in Technology-Assisted Education* / Mendez-Vilas, Antonio.(ur.). Badajoz : Formatec, 2006. pp. 88-92
- Moodle - A Free, Open Source Course Management System for Online Learning. <http://moodle.org/> (10.08.2009.)
- OIZEOO - Organizacija informacija i znanja u elektroničkom obrazovnom okruženju <http://infoz.ffzg.hr/oizeoo> (20.8.2009)
- OMEGA sustav učenja na daljinu <http://omega.ffzg.hr> (10.08.2009.)
- Prensky, M. Digital Natives, Digital Immigrants. On the Horizon. MCB University Press, Vol. 9 No. 5, October 2001.
- Wyles, R. Evaluation of Learning Management System software: Part II of LMS Evaluation. March 2004. <https://eduforge.org/docman/view.php/7/17/Evaluation%20of%20LMS%20-%20Part%20II.pdf> (20.8.2009)