

Using Open source Learning Management System for educating information professionals

J. Lasic-Lazic, M. Banek Zorica, S. Spiranec, J. Klindzic

Department of information science, Faculty of Humanities and Social Sciences, University of Zagreb,
I.Lucica 3, 10000 Zagreb, Croatia

The paper analyses and defines a range of international and global trends of higher and continuing education in the context of e-learning with particular reference to the Croatian context. Concepts of distance and blended learning are discussed with the special emphasis on its implementation at the universities educating students in the field of social sciences and humanities. The case study of transforming traditional learning environment (teacher-centred), to the blended learning environment (student-centred) using open-source Learning Management Systems, like Moodle, at the Faculty of Humanities and Social Sciences in Zagreb, Croatia are presented.

Keywords blended learning; Moodle; open source

1. Introduction and background

Since Croatia is a transitional country, it is subject to many changes, in education as well as the economy. Present changes can be observed at all levels of education, from the primary schools to the universities. Universities have moved towards Bologna process as well as the implementation of ECTS System in order to be compatible and comparable to other European universities. This change will enable exchange of both European and Croatian experts and students.

Educational institutions are expected to transform themselves in accordance to the challenges confronting the contemporary society. ICT is perceived as a catalyst for these transformations, which will enable the essential transition from traditional educational paradigms, manifested in instructor-led models (passive knowledge reception, teacher as the «gatekeeper» of information, individual effort) to 21st century paradigms manifested in student-centered models (problem solving, teamwork, interacting and processing information, active involvement learning, construction and discovery, problem exploration, customized learning).

Institutions of higher education have purposely and seriously begun to position themselves with regard to e-learning. They have made serious efforts to move ahead from the public-relation rhetoric of suggesting innovation towards becoming leaders in drafting vision, policies, and goals with regard to e-learning (Garrison and Anderson, 2003). This is absolutely true and the fact is that countries worldwide are establishing institutions (like UK's Joint Information Systems Committee) and publishing documents and standards that deal with the implementation and improvement of e-learning at the higher education institutions, in giving guidelines as well as evaluate e-learning at universities.

Usage of ICT in Croatian educational environment is strongly supported by the government, but there is still a lack of documents and guidelines for implementation and evaluation of e-learning in higher education. Nevertheless, Universities and Ministry of Science, Education and Sport are working on the documents and standards that should evaluate and benchmark e-learning programs, and we expect it to be released very soon. Currently initiatives are not organized on the university level but are coming from the single faculties. On the other hand there are initiatives coming from governmentally financed Croatian Academic and Research Network (CARNet) who has established an E-learning Academy in cooperation with University of British Columbia, Canada. It offers three one-year certificate programs: E-learning Management, E-learning Tutoring and E-learning Course Design. The whole program is offered through WebCT which is also offered to whole academic community for creating and offering their own programs i.e. providing e-learning support free of charge. Still faculties are a bit skeptical towards the

commercial solutions due to the fact that it is not known until when they will be financed and therefore are oriented to Open Source solutions like Claroline and Moodle.

Currently, the largest faculties at University of Zagreb are favoring Moodle and faculties from other universities are following them and the number has grown to 25 higher education institutions i.e. faculties and colleges. Therefore one could say that the Moodle community in Croatia is very strong, and due to that fact Moodle has its translated Croatian version. Especially with the transformation and conciliating university programs with the EU university programs under the Bologna process, the faculties are becoming more aware of the necessity of transformation of teaching regarding the new pedagogical methods and the full usage of the opportunities that ICT offers.

2. Transformation of learning environment

Today's students entertain, think, learn and grow up in a synthesis of sensory stimuli. The Internet has changed nearly every aspect of how they live, how they work and how they learn. The teacher-centered instruction that dominated much of higher education does not respond to this new way of living and learning and requires pedagogical models in which students are allowed to be active participants, leaving teachers the role of facilitators and moderators.

This new paradigm leads to the great popularity of the concepts of online learning and e-learning. In pedagogical discussions these and related IT-augmented forms of learning have been labeled as contemporary learning-centered teaching strategies as opposed to traditional, lecture based or teacher-centered strategies. After the initial hype and enthusiasm has calmed down, and oversimplifications regarding the relation between e-learning and traditional learning have earned more and more critics, new hybrid approaches, complementing the best features of the traditional and technological paradigm have emerged in higher education. This hybrid approach, often labeled as blended learning, is the thoughtful integration of classroom face-to-face learning experiences with online learning experiences. Blended learning is a hybrid of classroom and online learning that includes some of the conveniences of online courses without the complete loss of face-to-face contact, i.e. preserving the social context, which is critical to successful learning.

The text-based computer-mediated communication (CMC) that is used by Internet-based e-learning systems for discussion board and email discourse is a powerful tool for group communication and cooperative learning that promotes a level of reflective interaction that is often lacking in a face-to-face, teacher-centered classroom. However, the reduced non-verbal social cues in CMC, such as the absence of facial expressions and voice inflections, can generate misunderstandings that adversely affect learning.

Therefore, there is considerable intuitive appeal to the concept of integrating the strengths of synchronous (face-to-face) and asynchronous (text-based Internet) learning activities (Garrison, Kannuka, 2004). In our opinion, the most distinguishing feature of blended learning is the fact that it embraces multiple forms of communication to meet specific learning requirements or situations, allowing knowledge to be constructed uniquely, individually, in multiple ways, placing the student in the core of the learning process. Blended learning engages an integrated approach ranging from face-to-face communication channels and discussion forums to individual problem-solving situations and team-work, both synchronous and asynchronous.

A literature review indicates a high level of convergence between the concepts of blended learning and the idea of a student-centered pedagogy as shown below. Both blended and student-centered learning:

- provide the independence and increased control essential to developing critical thinking
- support free and open dialogue, critical debate, negotiation and agreement
- focus is on active learning
- provide a caring and supportive learning environment
- focus on knowledge construction through authentic learning

- arrange class activities and project work differently to allow learners a variety of choices to select according to the needs of each student. This results from the notion that students have different capabilities and preferences for learning modes and strategies creating a more collaborative learning environment, and providing different ways of accessing information and communicating with people
- provide learning environments that allows anyone to learn by doing, to receive feedback
- integrate self-paced learning programs and/or cooperative group situations, ultimately holding the student responsible for his own advances in education
- support complimentary activities and are interactive in nature

3. Creating the virtual learning environment

The Faculty of Philosophy at the University of Zagreb has organization similar to an university - constituted out of 23 Departments, 33 undergraduate programs and around 6100 students of whom the large majority studies at two departments i.e. has two majors. Therefore, a constant problem of time and space for lectures and tutorials is present. But not only had the organizational and infrastructural constraints urged for the creation of new and robust teaching and learning environments. The use of ICT supported learning at the Faculty of Philosophy was perceived as a prerequisite for the achievement of future educational reforms, since most of the students from this Faculty are here to get their teacher's degree. In other words, educational techniques and practices they get acquainted with during their study will ultimately affect their own future educational practice.

In September 2002, we have started a three-year project: Organization of Information and Knowledge in the Electronic Learning Environment (Organizacija informacija i znanja u elektroničkom obrazovnom okruženju - <http://infoz.ffzg.hr/oizeoo>), funded by the Croatian Ministry of Science, which explored issues within the electronic learning environment. One of the project tasks was to investigate, test and evaluate open source (Learnloop, ZOPE...) and commercial solutions (WebCT, Blackboard...) and decide upon the best solution for the needs of the teaching staff of the Department of information science and in future the Faculty of Philosophy. Our goal was not to create a self-sustained e-learning program, but a virtual learning environment with the emphasis on blended learning, where the ICT role was to help in dealing with the difficulties of overloaded schedule (problem of time and space) and in facilitating a shift from teacher-centered to student-centered learning.

We have finally chosen free, open-source course management system (CMS) MOODLE which was translated into Croatian, customized and implemented for the academic year 2004/2005 under the name OMEGA. 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 compliance; authentication via LDAP or IMAP (e-mail) user accounts issued by the Faculty; were a major advantage when deciding what products to choose and implement in a large heterogeneous institution like ours is, baring in mind the large number of staff not very familiarized with the idea of using ICT in their teaching. It is also rewarding that we can give back something to the e-learning community – like the Croatian language pack for Moodle, which is now available at the Moodle site.

After spanning more and more courses at the Department of information science and courses of the other departments at the Faculty it has overgrown its departmental character and became a faculty-wide e-learning system. Currently (October 2006), there are 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. At the beginning of the new academic year we have more than 2500 students enrolled in the courses offered on OMEGA. The number of courses, data, professors and students is increasing on monthly basis and during this academic year (2006/2007) we expect it to grow even more. In the past year, we had an influx of more than 1000 students, 30 teachers and TAs and the number of courses has nearly doubled. The Department of informa-

tion science has a largest number of courses - 57, followed by the Department of English with 19 courses, Department of History – 12, Department of Sociology – 11, Department of Croatian language – 10, and so on.

Currently, we are using Moodle v.1.6 with the Croatian language interface and some other minor modifications and customizations, based mainly on end users' requests or needs. If we look at the Moodle module usage statistics, we can see that teachers mostly use following modules: Resource module (3071 instances) – text, html, PDF documents being the majority; Forum module (436 instances) – 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; Assignment module (298 instances) – it gives teacher the ability to create assignments that students can do online, offline or via document upload, making the paper submission and grading both easy and transparent (and it helps saving the forests, too); Quiz module (212 modules) – online quizzes, with numerous capabilities, like random questions, timed sessions, question databases, variety of question types, access control and so on. 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).

4. Evaluation and further developments

The analysis of the impact and results of the new direction was based on a range of surveys conducted among students at the Department of information science both at the beginning and at the end of the courses. At the Department of information science, Faculty of humanities and Social Sciences, University of Zagreb, the education of information specialists on the undergraduate level is carried out in two forms, as a full-time and a part-time study. Students that are at the same time enrolled at information sciences studies and some other field of studies are full-time students, while part-time students are already graduated students, working in libraries, and most of them work in school or academic libraries. The evaluation was based around four major factors: *Content* – level of course content difficulty and students interest in the course at the beginning and at the end of the course; *Presentation and interactivity* – clarity, organization and structure; students coursework and presentation; *Support and evaluation* – teachers support and evaluation of OMEGA; *User satisfaction* – overall students course satisfaction.

Surveys have shown that at the beginning of the course majority of students were not very enthusiastic about the course content or simply did not know what to expect, but the results at the end of the course have shown that their attention has been roused up to the point where they are very interested about the subject (all the students had a shift of at least one level of interest). The content of the course was evaluated as difficult but understandable, especially through the exercises, team work and connection with the real-life examples. Assignments and short quizzes were evaluated positively, even with some of the students commenting that they would encourage the increase of such sort of activities. Concerning the teachers support during the course length, they expressed themselves positively, emphasizing the importance and need of having asynchronous communication via OMEGA as well as the human contact. The minority of full-time students stated that although they never sought teachers support, either because they got it from the discussion forum or because they didn't feel like needing it, they knew that if needed they would get it. On the other hand, part-time students were keener to ask for help either via e-mail, forum or chats and they were fully satisfied with the teacher and teaching assistants' support

When comparing the logs of full-time and part-time students on OMEGA it is shown that the majority of full-time students log on Wednesdays which is connected with the fact that the course is being held on Thursdays, while part-time students log on during the whole week. The obstacles that they were having were the ones regarding the technical infrastructure due to the fact that they did not have the fast link to download or view video presentations, while some had problems with connecting to the Internet at all (especially the students located on the islands). Therefore some of them skipped the video presentations and took just PowerPoint presentations.

On a general level, evaluation showed that both groups of students were satisfied with this new teaching and learning style, firstly because they could prepare themselves for the course assignment in time that best suited them. Secondly, they expressed themselves positively about the grading. Unlike the other courses which grade students according to oral or written exams (or both) at the end of the course, the technological capabilities of the system applied allowed more accurate monitoring of student's activities and a more objective and comprehensive evaluation. When comparing the grades of the regular and part-time students we got better results from the part-time students who generally had graduate diploma and this was their further development education conditioned with their work position in libraries where they have a time limit in their contract when they should be finishing their studies. Therefore their motivation is different due to the fact that it is more related with their work.

The empirical evaluation confirmed that following the pattern of blended project-based learning contributed to an increase in students' satisfaction and motivation to actively participate in the course. New environment enabled students to attend regular classes and span their working area independent of space and time but still under the constant supervision. Furthermore, it helped them while working on their courseware assignment - team work project, where they needed place to collaborate and communicate progress in order to write and present their project. They enjoyed all the conveniences of technology-based courses and where still allowed to learn within a social context.

5. Conclusion

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/MOODLE on a faculty-wide bases 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. On the other hand, the new educational reform and the implementation of the ECTS is also a major driving force for the teaching staff to shift and use new teaching and learning environment.

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