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# Institutional Support for e-Learning Implementation in Higher Education Practice: A Case Report of University of Rijeka, Croatia

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**Abstract.** *E-learning implementation in the teaching and learning process has been presented as an institutional, strategically planned operation at University of Rijeka, Croatia.*

*Motivated by poor use of ICT in teaching and learning process, together with the Bologna process changes needed in transformation of curricula, as well as by participation in one Tempus project on e-learning implementation in higher education, the University management decided to facilitate the activities for e-learning implementation with supporting policy documents as well as through allocating budget.*

*The implementation started practically from ground zero, with the aim of building capacities - setting up the infrastructure and environment ready for the implementation, as well as building a community of practitioners. The three-year long process has resulted with achievements that exceeded the expectations.*

**Keywords.** E-learning, Higher education, Bologna process.

## 1. Introduction

University of Rijeka is one of the seven universities in Croatia, middle-sized with respect to number of students ( $\approx 17\,500$ ) and academics ( $\approx 1300$ ). The University consists of fourteen constituent institutions – faculties, departments, academy of arts, library and student's centre. It was formally founded in 1973, although the origins of higher education in this area date back to 17th century.

Because of the regulative acts in the area of higher education in Croatia, all the institutions forming University of Rijeka are individual legal subjects. This situation resulted in University being a weak alliance of its constituent parts. Situation has been changed recently and the University struggles to become more integrated, with much more empowerment of the central university bodies. In this light, the University has decided on the Strategy of University of Rijeka

2007-2013, the first such policy document among Croatian HE institutions, with the Strategy for e-learning implementation as its integral part (also as the first such policy document in Croatia).

The background of the e-learning strategy document was the Bologna process and its aim of improving quality of teaching and learning through implementation of learning-outcomes oriented curricula. The other motivational factor was to attract more students, aiming at new target groups of students and achieving better flexibility of teaching and learning process. Within this framework, the extensive reforms of study programs curricula have been made. As the main outcome of this process the University expected not only to achieve academic degree standards and quality assurance standards comparable and compatible with other European universities, but also to improve students' performance and enable them to gain degrees faster. Moreover, the centralized service of e-learning support was viewed to be one of the elements of future integrated university support systems.

The University Strategy for e-learning implementation has been reached as an outcome of the Tempus project UM-JEP 19105-2004 Education quality improvement by e-learning technology (EQIBELT) [5]. The project activities, in which Croatian and EU partners participated very actively, helped our University to build competency, to improve quality assurance and to participate with the high level of professionalism.

In this paper we will try to describe the efforts put into e-learning implementation in the teaching and learning process at the University as an institutional, strategically planned operation, and to report on the progress achieved so far.

## 2. Methods and context

A key driver for entering the learning implementation was the current state of low efficiency and effectiveness of teaching (overall

less than 30% students eventually finishing studies, taking a study time 1.5 to 2 times longer than anticipated). This current state was also marked with very poor use of ICT in teaching and learning, in spite of having good infrastructure and equipment at disposal: we have had broadband Internet access for a number of years (Croatian academic network, CARNet) present in all of the faculties and academies, teachers have had at disposal PCs for their personal use (almost at 100%), and the number of students owning a PC and having broadband access at home was approaching 95%. According to some surveys done at the University in 2005, the most frequent use of ICT in teaching practice was the use of PowerPoint presentations in the classroom and publishing them on the course web pages.

Another key driver, equally important, was the Bologna process and the need to redefine complete curriculum with strong definition of learning outcomes for all the teaching and learning done at University. E-learning implementation was a good chance to do two things at the same time – redefinition of curriculum and most of the formal teaching practice could be enhanced by introducing more of technology into T&L. The both processes were always marked with the strong accentuation on overall “improving the quality of T&L practice”. Improvement of quality was mostly seen through exploring the possibilities of widening and strengthening the communication between teachers and students, as well as implementing the concept of constant follow-up of every student through the course activities. According to the newly adopted University book of rules for undergraduate studies, every student achieves 70% of their grade during the course, and only 30% at the final exam. In this light, the need for communication with students and continuous assessment of their work and progress during the course became imperative. Institutionally supported e-learning implementation [2] and institutionally supported capacity building for e-learning [1] seemed the right choice.

As mentioned already, the initial familiarization with e-learning concepts came through University of Rijeka’s partnership in the Tempus EQIBELT project [5]. Strategy for e-learning implementation on University of Rijeka 2006-2010 was one of the main outcomes of the project and it was delivered in October 2006 by the University of Rijeka, as the first such

document in Croatia. The corresponding action plan was set and approved by the Senate in October 2007, including allocated resources and defined financial instruments for implementation of activities in 2008. The project activities of the University were coordinated through the Information Technology Academy (IT Academy) of the University, so the IT Academy took over many of the activities from the Action plan to be realized. The partnership in Tempus EQIBELT also provided financial means to setup the new ICT equipped classroom within IT Academy facilities.

### 3. Results

The results obtained will be presented with respect to the chronology of the events and their outcomes.

The initial phase included organization of the education for academic teachers in general ICT literacy (where the participation was stimulated by the university co-financing IT Academy programs), organization of events with promotion of good e-learning practices by the academic community in Croatia and writing and submitting the Strategy for e-learning implementation to the University Senate.

There were two important outcomes of the first phase: on one side the academic community became aware of e-learning as a new way to approach the teaching practice and on the other, the University management accepted the long-term policy documents towards implementation of ICT in teaching and learning. As the activities of e-learning implementation were parts of University Strategy, they were now budgeted through annual action plans, which was of the highest importance for further actions.

The second phase included organization and functional setup of the University of Rijeka e-learning net (Fig.1.) The e-learning net was considered to be the main sustainability factor of the process. Activities comprised of setting up faculty e-learning teams and the university Committee for e-learning, organizing the education on e-learning for academic staff involved in teaching, creating a document on defining the minimal set of technical and methodological standards as recommendations for blended e-course design and preparation for establishing the University e-learning centre.

Faculty teams were formed generally as groups of early technology adopters at the institution. A person (academic) was chosen to

be the e-learning representative at the institution and at the same time to be the representative in the university Committee for e-learning, therefore establishing the connection from institutional to university level.

Education on e-learning for academic staff involved in teaching was organised by the IT Academy. The educational programmes called "E-learning in teaching practice" consisted of 3 modules that comprised 26 classroom and approx. 40 hours of online teaching and learning. In the first module "Why e-learning and how can it improve my teaching practice?" participants took the student's role and studied foundations of e-learning theory (history; modes of implementation, advantages and disadvantages, basic features, new teaching opportunities with e-learning, technical prerequisites, etc.). The second module "Multimedia tools for producing e-content" treated different available programs for creating and editing multimedia elements and their adequacy of inclusion in e-courses. In the third module "How to set up an e-course using Moodle?" the participants got to know the LMS as course designer and tutor, learnt how to manage the contents and the course administration, how to plan the course and course delivery, etc. This module also included the presentation of new University library e-literature services. As early adopters, the first groups of participants responded extremely positive to this educational programme, expressing mostly gratitude for getting to know new teaching and learning tools with which they can experiment in their teaching practice and try to improve their student's learning outcomes. Since IT Academy had no resources to organize technical support for the LMS, collaboration with already existing Centre for e-learning at Zagreb University (CEU Zagreb) was established. For all the participants the e-courses for testing, developing and delivery were opened at Merlin – LMS developed on the Moodle platform at CEU. During year 2008 there were 80 participants in the programme that were initially trained in e-learning theory and practical implementation, resulting with 81 active e-courses offered to 2800 students of University of Rijeka in academic year 2008/09. Additionally, one of the very important collateral outcomes of this educational programme was also the creation of a new community of academics interested in problems of improving higher education teaching and learning. Face-to-face sessions during the programme, enabled mingling of academics

where they have had a chance to get to know each other, to share experiences and discuss problems.

The preparation activities for establishment of an e-learning centre were basically the writing and submitting (to University management) a plan of action for setting up the Centre together with negotiating (with University management) full-time-equivalent (FTE) positions and facilities. Facilities were housed within IT Academy rooms at the Faculty of Engineering, while 1 FTE academic position was approved starting January 2009.

The University Committee for e-learning implementation, established as a policy making and follow-up group, in one of its first tasks, delivered a document on recommendations for e-course content development. This document provides definitions of specific e-learning tools and elements built in e-courses, suggestions on course content structuring and use of multimedia and suggestions on copyright issues for accessible material on the web. Moreover, the document set the classification of e-courses with respect to level of e-learning tools implementation into 4 classes, in order to enable easier institutional benchmarking of e-learning indicators.

The most important outcomes of the second implementation phase were a functioning university e-learning net (although not yet fully functional in 2008) with concomitant increase in number of active e-courses – by the end of the 2008 there were 91 active e-courses with almost 3200 e-students compared to only few e-courses at the beginning of the year.

The next phase of the implementation is planned as finalization of the university e-learning net, with completed setup of the University e-learning centre basic services. By the end of 2009 we expect to have the university e-learning net fully functional: faculty teams coordinated with e-learning centre and Committee for e-learning implementation, as well as teaching and learning quality control assured through surveying on the use of e-learning tools in T&L practice. According to the action plan, faculty teams are supposed to plan the organization of promotion of good practice in their own institutions, provide direct contact with users (both teachers and students) and have the obligation to send written annual reports to university Committee.

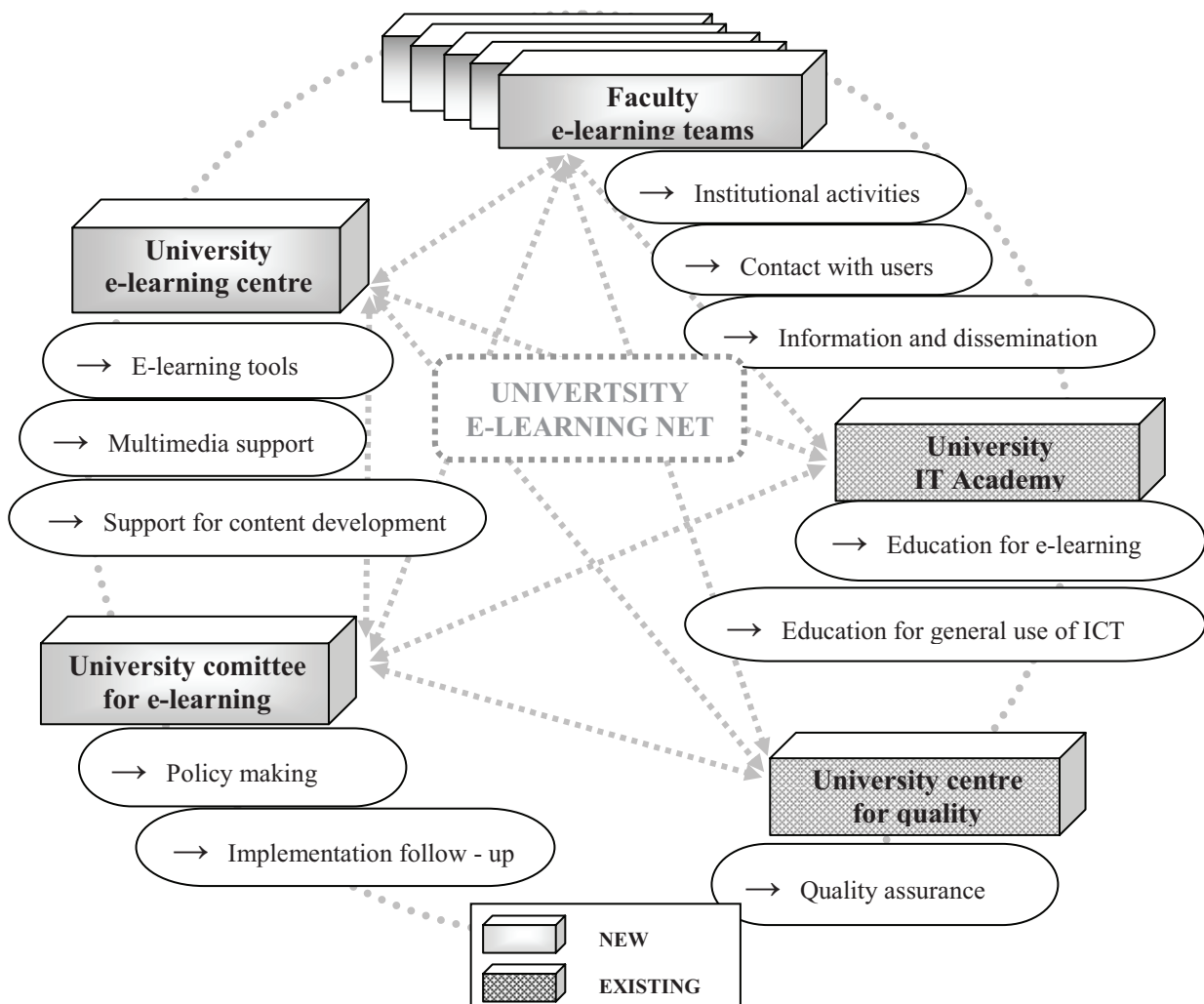
At the moment, University Committee is preparing a university-wide call for e-learning

projects (content development) and announce and Award for the best blended e-learning course on University, which will hopefully additionally stimulate the implementation of e-learning tools and T&L quality improvement.

The near future activities also include a specific task of the University Library in organisation and setting up of a new librarian service called “e-literature service”, specifically oriented to support design of e-courses. The service will include selection, acquisition, digitalization, storage and cataloguing and linking of e-references, or in other words will help the course designer in building e-references collection. The service will be given on individual request of a registered e-course designer.

University e-learning centre started with the activities at the beginning of 2009, with one FTE position approved for this purposes. At the moment, the centre is setting up the university platform for e-courses based on Moodle LMS, organizes support for multimedia production and is planning to organize the support for content development. All e-courses active on CEU Zagreb’s platform are to migrate to University of Rijeka platform by the end of the 2009.

Expected outcome of this near-future phase is the functionally implemented university e-learning system with continuous follow up and quality control assured.



**Figure 1. Scheme for e-learning net at University of Rijeka. Functional elements (institutions, centers, groups), responsibilities and connections**



## 4. Conclusions

We need to conclude that quite some time was needed from the beginning of the process until some visible and measurable results appeared (incubation or lag phase period). Nevertheless, we need to stress that the very beginning was really building up from ground zero – the preliminary surveys in 2005 revealed that just few academics have ever heard of e-learning tools and that for a majority of teachers the ICT in teaching was synonymous with using PowerPoint presentational tool and searching the Internet for collecting new information.

After almost three years of work, results are visible – a community of teachers using e-learning tools in their teaching has been built, they are connected on one side to decision-makers and on the other to support services through the university e-learning net. University e-learning centre has been established and IT Academy serves as a central point for delivery and development of educational programs in e-learning. The results clearly show that not only the capacity building (in terms of building “abilities of individuals and institutions to perform functions, solve problems and set and achieve goals” [6]) was successful, but also that the way e-learning was implemented in accordance with at least some of the success criteria [1,6]. These criteria were met in the first place by setting the institutionally supported implementation in which some critical parameters were controlled: dissemination of information on e-learning best practices with subject orientation to specific institution (i.e. the seminar on e-learning on Faculty of Engineering was held by e-learning practitioner in the field of mechanics of fluids), adequate and learning-outcomes oriented education of teachers on use of e-learning tools, assured technical support for e-learning implementation and developed mechanisms for quality control. Nevertheless, we must emphasise that this initial stage of e-learning implementation almost certainly gathered teachers intrinsically interested in T&L innovations as well as ICT literates; in this light we should expect the e-learning acceptance in the next phase of implementation at least slightly reduced (for reasons of joining of teachers not so ICT skilled and not so T&L quality improvement oriented).

It is necessary to stress that the university top management commitment was the key driving

force in this project, both strategically via policy (and budget) channels but also through setting the scene for faculty/department/personal levels of implementation. Moreover, the initial infrastructure that has been set up for e-learning implementation, seeks to sustain the collaborations and the continuously offered educational programme and support for teachers – the most important factors for the success, as already discussed in literature [3,4,8].

Although much of the effort and resources investment is still needed, let us conclude that the report presented here could serve as a case of good practice in institutionally supported e-learning implementation model.

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