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ICT AND E-LEARNING AS CATALYSTS FOR CHANGE IN HIGHER EDUCATION.

In the academic year 2005/2006, Republic of Croatia reformed the higher education system and implemented the Bologna Declaration. Faculty of Electrical Engineering and Computing, University of Zagreb took this opportunity to completely remodel the whole education process and introduce the continuous assessment.

Not backed up by the appropriate increase of funding, the faculty faced an enormous challenge while trying to cope with the new education paradigm. The continuous assessment in classes with more than 1000 enrolled students, based on elaborate grading schemes with points for lecture attendance, homework, online and OMR tests, midterm and final exams, was completely infeasible without ICT support.

Therefore, a proprietary LMS named AHyCo (Adaptive Hypermedia Courseware), originally containing advanced navigation through the learning space supported by computer generated quizzes, had to be extended.

Homework grading was particularly difficult, considering the number of students and the number of graders involved. Consequently, automated grading of the programming assignments was added to AHyCo.

Only with the help of ICT, the first year of education according to the new principles, instead of a total failure, finished with the success.

Unfortunately, we mostly used the technology for examination and not for teaching, for the reasons described hereafter.

EFFECTIVENESS AND SUSTAINABILITY OF E-LEARNING.

There exist several well known LMS's that can serve as support for the e-learning process, so it is almost the matter of taste which one to choose. Also, there is always a possibility to develop a proprietary one. Even this task, compared to the effort of producing a decent content for a few courses, is a minor one. Therefore, some kind of learning object market should be established and coordinated at the international level. The model of pricing, categorizing etc. is yet to be conceived. In any case, e-learning can only be a supplement to the classical learning environments.

A good and reasonable strategy should be defined and strong support obtained at the institution introducing the e-learning at an institution. Generally speaking,

the technology itself is not the major problem any more, even for the online video delivery. But, although most institutions nowadays have adequate infrastructure to provide the e-learning of sufficient quality, broadband internet at students' homes is a bigger problem. Hence, broadband access should be made more affordable for students and academics.

Additionally, e-learning content should conform to the established standards. Otherwise, extremely diverse appearance and functionality of learning objects could arise, discouraging the students to accept them.

One of the major obstacles for wide acceptance of e-learning is the amount of effort required to switch to the new technologies. Chalk-and-board paradigm is infinitely less complex, and, most importantly, gives a teacher an opportunity to fill an hour of a lecture with much less matter. In Croatian higher education salary model, where it is completely irrelevant whether a professor works 0 or 200 hours per month with and for the students, it is in human nature to follow the easier path. Teachers must be motivated to use the new methodologies and technologies. Even for the enthusiastic people, their initial knowledge of the technologies could be the reason to continue in the old way. In the absence of the ready made learning objects, a centre for the e-learning content manufacturing is a must.