E-curriculum Projects in Hungarian Higher Education: A Case Study

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Introduction

The paper is concerned with e-curricula recently completed by two Hungarian higher education institutions, jointly funded by the European Union and the Hungarian government. I will arrange what I am going to say around seven main topics. I) A brief introduction to Hungary's EU accession to the European Union as well as II) a brief look at Hungarian internet infrastructure will come first as antecedents. III) Related section of the EU project system will follow to show how EU projects work. IV) The basic aspects of SROP's (Social Renewal Operational Programmes, "TÁMOP" in Hungarian) will be detailed. The four introductory sections will lead up to e-curriculum projects in Hungarian higher education. So, V) I will turn to the e-curriculum in general and VI) to the e-curricula of two 4.1.2-08.1/A-category SROP projects in particular, from the point of view of teaching technology. (Lack of space will permit me to detail with one of them only.) VII) Some concluding thoughts about application and effectiveness will close the paper.

Keywords: case study, e-curricula, EU-funded projects, Hungarian higher education, blended learning

I. HUNGARY AND THE EUROPEAN UNION

Following the tremedous social changes of 1989-90, the former so-called socialist countries, with Hungary among them, targeted joining organizations of West European integration. As a result, my country has been a NATO member since 1997 and joined the EU as a member country with full powers on May 1, 2004. [1]

II. AS FOR HUNGARY'S INTERNET INFRASTRUCTURE

Hungarian Post, Hungarian Telecommunications Company, and Please Ltd. started building a packet-switching network as part of the Information Infrastructure Development Programme in 1986 (in what was still socialist Hungary). The two sponsors of the program were the Hungarian Academy of Sciences and National Technical Innovations Office. Because of import restrictions, the Academy developed a huge, "home-made" area network of a software system for Hungarian users. The network was in place by 1990, with thousands of X.25 terminals. It offered network services for research institutes, universities, and libraries. 1990 was the year of international opening in my country: through EARN-BITNET and EUnet a Hungarian internet system of full value was built through Vienna. HBONE, backbone network using IP technology was created parallel with this development. In 1991 HUNGARNET, the National Information Infrastructure Development Institute was formed. In 1993 the first Hungarian server, www.fsz.mne.hu, went into operation, and HUNGARNET joined the European research network center DANTE (Delivery of Advanced Networking Technology to Europe) as a founding member. [2]

III. HOW EU-FUNDED PROJECTS WORK

Projects work as regulated by the EU support system, based on the same principles in every member state, as approved and monitored by Brussels. The previous cycle was spanning the

years 1996-2006, and the life-time cycle of the present one is seven years (running from 2007 through 2013). Project applications are invited in full accord with Brussels basic principles (with EU legislation and regulations), with their contents determined by the given member state. In our case they are announced in Hungarian, and the budget of the project is calculated (and handled all through) in Hungarian forints. [3]

IV. THE SOCIAL RENEWAL OPERATIONAL PROGRAMME

SROP is one of the most important sectoral programs of the New Hungary Development Plan (NHDP). When I summarize what can be reagarded its essence in the present context, it is my intention to stay close to the document itself, by using direct and indirect quotations.

The purpose of the Programme is "to implement interventions successfully in the programming period 2007-2013, which affect the entire population of the country, based on the infrastructure background, equal chances of access to quality services provided primarily by the Social Infrastructural Operational Programme and regional operative programmes."

The budget of the programme: 85% of its funding is provided by the European Union and 15% comes from related domestic sources.

The programme's set of objectives: the contribution of the Social Renewal Operational Programme to NHDP's overall objectives of the expansion of employment and permanent growth primarily is "by measures aimed at the supply side of the labour market" and "through the development of human resources." SROP maintains that in order to exploit available labour supplies, job-seeking must be increased, labour market and social discrimination decreased. It is also necessary to improve "the harmony between qualifications, skills sought and supplied."

"The above objective is intended to be achieved with the improvement of the quality of human resources and with the implementation of the following specific objectives, which requires both the instruments of employment, education and training, the social field, health care, culture and general education, and anti-discrimination instruments".

- Improving the alignment of labour market demand and supply; reducing the regional differences in activity; promoting adaptability to change; promoting lifelong learning; improving the state of health and ability to work; strengthening social inclusion, promoting equal opportunities [4].

V. SROP – 4.1.2-08/1/A

The project was initiated in 2009, to be funded by the EU and co-funded by the European Social Fund. Its main purpose was curriculum development and content development, with special regards to training programs in mathematics, natural sciences, technical disciplines, and informatics.

The main objectives of this SROP priority axis are: to change over to competence-based education; to switch curricula and curricular contents to the requirements of the recently introduced linear Bologna structure of higher education; to give information and communications technology a wide currency, thereby enhancing ICT-competence, adopting lifelong learning strategy, and moving in the direction of massification of higher education. The rapidly increasing amount of fast-changing knowledge makes it imperative to develop and employ complex and up-to-date higher education contents, programs, and methods.

The construction aims at providing higher education institutions with the opportunity to prepare themselves for meeting the demands

that follow from the Bologna Process, the European Qualification Framework (EQF), the strategy of lifelong learning; also to renew and expand training capacities through curriculum development and related content development.

What is more, it also intends—in agreement with the Lisbon Strategy—to facilitate the development of state-of-the-art training programs in the fields of mathematics, natural sciences, technical sciences, as well as informatics and computer science; to contribute to increasing the proportion of students and graduates in these fields by developing and disseminating up-to-date curricula and training methods.

Allocated funding at the time when the project was announced: HUF 1 713 043 848, an amount secured in co-financing by the European Social Fund and the Hungarian Republic's budget.

Content of application

1. Curriculum adoption, curriculum development, content development activities

- Purchase, translation and adoption of international curricula used in foreign higher education institutions and training programs; developing interdisciplinary and complex curricula; harmonizing curriculum development with expectations of the labour market, involving actors of the labour market in curriculum development; switching from print-based content to digital content, developing digital training program; building foreign language credits in curricula, developing bilingual degree programs; developing foreign-language degree programs; translation of foreign language curricula into Hungarian and Hungarian curricula into a foreign language; development of complete curricula, especially modular ones; drawing up curriculum grids, allocation of credits to content; revision

of credit allocation, harmonizing institutional or disciplinary credit content; developing institutional chart of credit equivalence; securing free online accessibility of most frequently used academic textbooks; content development related to sustainable development, social responsibility, climate change, equal opportunities, health development, consumer protection, and labour conditions.

2. Modernization of content services

- Making offline contents accessible online; creation of related OpenCourseWare (OCW), open-course sharing; designing online accessibility for traditional knowledge- and information-based disciplines; upgrading existing own sites providing content services, in relation to the curriculum development and content development described above.

3. Acquisition and improvement of specialized scientific databases aiding curriculum development, content development, and training.

- Acquisition of curriculum and content development-related scientific databases; integration of above databases into curricula.

VI. THE TWO SROP-SUPPORTED E-CURRICULUM PROJECTS

SROP 4.1.2-08/1/A-2009-0005

Project title: "OpenCourseWare informatics curriculum and SCORM compliant curriculum development in a BA/MA-level linear degree program framework of library informatics."

The application submitted in 2009 was a winner in 2010. The Ministry of Education provided a

68.504.114 HUF support. As the total project cost was 85.630.143 HUF, the nearly 17 000 000 HUF needed for launching the project came out of the participating institutions' own budgets as own recourses. Members of the Consortium: Károly Eszterházy College, University of Szeged, University of Western Hungary, and the College of Nyiregyháza.

General objective: to reach out beyond the walls of these colleges and universities to make adult education of the region more effective and raise the level of training and education. It is another step in the process of introducing various forms of e-learning in all these institutions. The idea was to implement a system which could be used in the whole spectrum, day-school and corresponding courses alike, as a complementary support of individual study. In the project under discussion the basic and core training contents of bachelor and master's level librarian and information scientist training were developed as determined by training and exit requirements and adapted to the electronic learning environment (preparation, medialization, Scorm-compliant publication). The project produced 42 multimedial curricula, with fifteen hundred pictures and hundreds of sound and moving picture components as illustrations, all made available online. The whole material is public and available on the web at http://www.tankonyvtar.hu/

The steps in creating the project:
- creating, building up, and operating the work-surface;
- preparation of project participants, clarification of their roles, their introduction to working processes, presentation of indicators;
- definition of quality management directives and aspects;
- development of source-documents that comprise the curriculum, and their uploading onto the work-surface;
- converting core package of the curriculum to SCORM 1.2 standard, fitting ready media elements in the e-curriculum, completion of SCORM - standardized software;
- steps related to professional review of e-curricula;
- finalized curricula are transferred onto the learning management system (LMS);
- publication at www.tananyagkonyvtar.hu .

1. The work-surface: the eProjekt (http://eprojekt.ektf.hu) page is a shared surface, which makes interoperability of relevant documents possible for the project management.

2. Preparation of poject participants: it takes place in several phases, according to their spheres of action.
- Professional requirements: faultlessly produced core material; didactic stratification; typographical freedom depending on professional criteria; tests; media elements (exact element numbers are important); scenarios; a clear sense of evaluation criteria; acceptance for production

3. Quality control: the project is steered by clearly defined principles and aspects of quality control.

4. Preparation of source documents and uploading them on the site; determination of media formats.

5. Media components: creation of scenarios for pictures, figures, videos, and animations that are needed for the curriculum.

6. Conversion of core material to SCORM 1.2 standard, fitting ready media components into the e-curriculua.

Didactic structure:
- sections of the introduction comprise: main purpose, content, succint exposition, definition of competencies and requirements, learning advice, general information; lesson (core curriculum); summary/conclusion; supplements

The e-materials were constructed with LMS, which makes it possible that besides the SCORM 1.2 format, one can generate, out of the SCOM packages, the XHTML version of the curriculum, for whose running no SCORM player is needed, only a browser, which is especially advantageous in case of offline display.

eXe e-learning editor was also used in the course of the work.

Use of training management (framework system): MOODLE is the most commonly used in Hungarian higher education. It was employed in this project too.

7. Official reviewing. It was undertaken by consortium faculty before finalizing the e-curricula.

8. The finished curricula were then transferred onto the LMS.

9. Publication on the www.tankonyvtar.ektf.hu web page. [5]

SROP 4.1.2-08/1/A-2009-0046

It is the project of the Faculty of Informatics, University of Debrecen. 47 e-curricula were generated at 95 million HUF cost (most of it generated through applications). The 47 e-curricula were constructed under the umbrella of the "Information science curriculum storehouse." The program participants were University of Debrecen Faculty of Informatics as well as the faculty of partner institutions, 60 in all. The length of time the project required was a year and a half. The developed curricula cover the participating institutions' whole range of information science training: software information technologist, business information management, software engineering, library information sciences, and informatics training at BSc and MSc levels. They also purchased and adopted curricula from international higher education institutions, digitalized several books, which they will make accessible online free. They laid special stress on harmonizing curriculum development with the demands of the labour market, so they invited the professionals of the region's relevant firms to participate in the project. The digitalized

contents will be made available on web page http://www.inf.unideb.hu/kmitt/konvkmitt/ in printable or browsing html format, and as epub for e-book readers.

VII. THE EFFECTIVENESS OF E-LEARNING

The role and effectiveness of interactive, multimedial curriculum in the complex process of learning gains more and more recognition. Learning combined with e-learning is a forceful combination of our days. A significant development of recent years is the extent to which blended-learning methodology is gaining ground. It points beyond the classroom as it is both technology-based and human-being-centered, individual and collective, guided and discovery-oriented. [6] It is a blended form of learning, in which part of the learning environment keeps changing in time and space, and learning will not be space-dependent.

The e-curricula introduced above are out to support blended-learning. Eszterházy College has already established its own tradition of e-learning-supported instruction. They launched the long-distance education variant of librarian and information scientist training in 2000. The curricula developed in that early phase, also financed by application-generated funds of the time, are somewhat outmoded by today, and the introduction of the Bologna structure made them obsolete to some extent. The SROP project e-curricula were already developed in such a fashion that they adjusted curricular content to the employer's demands, and gap-filling courses were created. Careful analyses resolved into the conclusion that "blended learning" would be most expedient to introduce, whose components comprise traditional learning, virtual learning, e-curriculum, and personal consultations. [6]
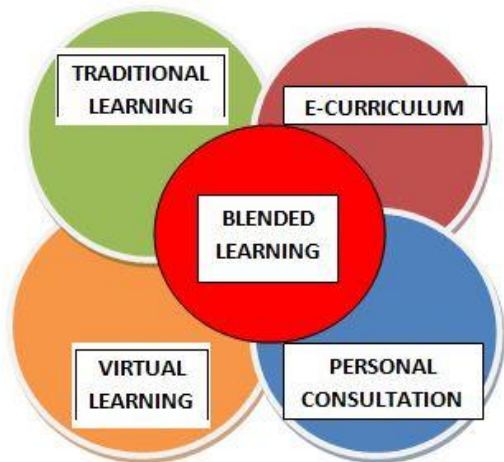
Figure 1. The elements of blended learning [6]

The theory and practice of learning has never been uniform. It was usually divided into three areas with different actors: theory, education, and business. The learning habit of the Z-generation of our days is changing as we speak. "Digital natives" demand teaching and learning methods that exploit the possibilities of information and communications technology increasingly and more extensively. Z's are quite happy sitting in front of the computer for hours, something our pedagogy must make the most of. Old methodology and old learning content are replaced, cooperation, interactivity, visuality, and playfulness are foregrounded. Contact-learning environment, where individuals are simultaneously present in person in space and time can no longer be effective in itself. Changed attitudes are a huge benefit: the student's command of information and communications technology becomes systematic and exploitable—emerging here is a 21st –century key competence: media erudition. One thing Hungarian higher education tries to do is to respond to the changed world of changed learning habits. Monitoring and assaying the results of the new teaching and learning methods is a challenge for the years to come.

Summary: e-curricula can be used efficiently only if they fit into the blended learning framework. What remains an open question, though, is to what extent the availability of e-curricula bears on students' disciplined class attendance. In Hungary students are not required to attend a lecture course (as opposed to seminars and practices); therefore, e-curricula may increase the number of classes in whose case student attendance has never been characteristic in the first place. The only way to avoid the situation getting worse is to assign the e-curriculum a role in which it represents only part of the knowledge to be acquired.

Nevertheless, on the whole, the SROP-funded e-curricula, on the point of being implemented, offer students and faculty technologies that can be effective since they are a state-of-the art response to a highly contemporary challenge.

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