# BLENDED LEARNING IN HIGHER EDUCATION FOR STUDENT GROUPS HAVING DIFFERENT LEARNING STRATEGIES. THE IN-TEGRATED LEARNING CONTENT MANAGEMENT SYSTEM AT DENNIS GABOR COLLEGE

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## Introduction

In the field of using informational and communicational technologies (ICT) in education – overcoming the early problems of web based virtual education – blended learning became general which is based on integrated application of electronic and paper based college bulletin. In a functioning institution of higher education, in the course of accomplishing effective blended learning, the real problem emerges from choosing the most appropriate form of education, education service and medium – "The challenge: to find the right blend" (Moreau, Picart, Schreurs, 2002).

Evidently, when a decision has to be made between an online or an ICT supported conventional course, one must start form the students' needs according to the modern pedagogical principles. Therefore, an effective blended learning education system cannot be developed without definition and analysis of the student groups having different learning strategies. Taking into consideration all the above, makes it possible to effectively "blend" the different education services.

The present article examines this problem from the point of view of colleges dealing with mass open-system distance education. It states some general conclusions about the needed education management for modern blended learning, and also for Learning Content Management System (LCMS). Also, the article summarises experiences of Dennis Gabor College, Hungary with regard to these questions.

## Blended learning as a complex and integrated system of education

In the era of coming the age of the information society, following the quickly changing factual knowledge becomes difficult within the boundaries of the traditional system of education. Nobody argues that the future of education shall be searched in utilizing ICT and especially the possibilities provided by the Internet. At the same time the ambitious development programs for e-learning, the optimistic market prognoses, and the predictions for mass spreading of virtual education when faced the practice have not turned out as imagined. According to critical analysis, there were more expectations towards e-learning than it really could perform (Szűcs, Zarka, 2003).

Criticism coming from the academic sphere, connected with the programs of first generation e-learning or web based education, is focused on the following:

- Virtual online courses are formed through simply "translating" them from the traditional class-room version into the Internet (Singh, 2003);

- Most part of the provided online contents (sections from course books, lecture outlines etc. or at cases .html versions of these) is textual, their multimedia content is minimal and there are very few interactive components (Schulmeister, 2002);

- Many times virtual education is formed on the basis of an obsolete pedagogical-andragogical model, learning is viewed as a passive information giving process (Greenagel, 2003). The different learning styles, education, skills and motivation of students are not taken into consideration in the teaching processes and the content;

- In many e-learning projects the technocrat "economy" view sets in, which regards the media of education and the environment as the starting point and puts the main stress on "cost-saving" implementation. "The programmer overrules the teacher" (Kárpáti, 2003).

Criticism targeting asynchronic courses in the higher education, has been internalised by professionals working in institutional training in the past couple of years. They express growing scepticism on the effectiveness of Internet based online courses (Kriger, 2003) (Villanti, 2003).

By these days practise has proved that education through online courses can only be widely effective if the student is highly motivated, and capable of cognitive, purpose oriented self-studying. Besides, these student groups obviously can take only online courses, because of their special life circumstances cannot participate in other education (eg. cannot access education institutions form their home).

In order to solve the problems introduced above, some ways of research/development have been outlined, out of which the generally accepted concept was "blended learning", targeting the application of electronic and traditional learning material together. According to the international specialized literature, this can be regarded as the most effective solution widely used by students (Kárpáti, 2003). Added to its success the fact that this form of education can be accepted by institutions using traditional or distance education, following the necessary alterations, since it makes evolutionary development without radical changes.

The basic idea of blended learning is very simple: such form of education and medium (media), have to be selected, which serve the goal of the most effective way of education. Under the concept of blended learning we mean a teaching/learning concept, which aims the connection and coordination of different teaching forms (including traditional classroom and the new ICT based virtual resp. online education) based on reasonable and pre-planned didactic (based on Fachlexikon e-learning, 2003).

We can talk about effective blended learning when the "blending" is intentional and among the specific elements of the education system, properly organized, pre-planned contacts are made. The effective blended learning strategy spans over the whole lifecycle of the stages of blended learning education (plan, develop, deliver, manage, evaluate) (Singh, 2003).

Therefore, the complex and integrated approach to blended learning offers not only more choice for the student, but puts down procedures for joint application of ICT, pedagogical ideas, didactic methods, and learning resources (Berge, Fjuk, 2003).

Such a model can be Kahn's octogonal framework which introduces the eight fields of blended learning (institutional, pedagogical, technological, interface design, evaluation, management, resource support, ethical) (Kahn).

In a functioning higher education institution, organizing modern and effective blended learning presumes the elaboration of an overall development program (strategic plan) on the institutional level.

In connection with the pedagogic and ICT conditions of this, some conclusions can be made with generalization in the given field.

## Applying different learning strategies and blended learning in open colleges' distance education

Trying to maximally take into consideration the individual needs is a characteristics of the present era. According to the opinion of some professional experts, one of the main tendencies of the 21st century will be to adjust education to individual needs (Piller, Möslein, 2002).

In the case of an open institute of higher education, following distance education, for effective implementation of blended learning, the learning strategy chosen by the student is essential, which depends on the learning style, skills and in some cases the special life circumstances (eg. not able to participate in the face-to-face courses on causes of distance or work) of the student.

One possible definition of learning/teaching strategy: a complex system of methods, tools, organizing methods and forms serving individual goals, which are founded on coherent theoretical basis, having particular syntax (definitions and order of the steps to be carried out), and is realised in a particular learning environment (Falus, 1998. p 274).

There are some theoretic results and references in this field. One example is the four learning style defined by Kolb (Kolb, 1983) or the "multiple intelligence" approach (Lazear, Gardner 1991), of which well defined learning strategies can be formed. More elaborate analysis of the topic can be found in DEOS (Distance Education Online Symposium). On the other hand applying these theoretic results directly in practice makes further analysis necessary. Main difficulties arise from measuring what belongs to the certain categories and the alteration of learning style in time, caused by learning and the changing circumstances of life. Opposed to this some groups substantially differing in learning habits can be lined out. Such can be for example: a group of young students without experience in higher- and distance education.

In order to effectively organize blended learning for the group described above in an institution of higher education following distance education, the following should be followed: in the first year the students must be prepared for using the education environment and, must learn how to study, basically in the face-to-face courses which is further and further combined with ICT support. These courses can also be used for collecting information in order to group students according to the theoretic learning styles (teacher's experience, surveys, tests). By evaluating these, the students can receive personal methodological offers. Pure online courses shall be offered from the second year on and in special professional fields.


## Integrated LCMS supporting blended learning

The effective blended learning as integrated system of education, presumes the operation of Learning (Content) Management System LCMS, which provides the cooperation (framing) of ICT based services.

As a software tool, functionalities of LCMS provide creation, storage, collection and service of reusable learning objects and collective control of administrative, communicational and learning material handling tasks. (With applying LCMS theory, the literature does not follow the same line: in some cases LCMS is regarded a unifying system together with Learning Management System (LMS) and Content Management System (CMS) functions, other authors identify LCMS with the virtual learning environment, etc.)

The integrated LCMS on the institutional level, can be regarded as the infrastructure of blended learning. It provides complex services for the whole of the educating body and students.

Some major characteristics:

- Its services comprehend each and every element and form of blended learning (interactive teaching program on the web, electronic presentation in the classroom, electronic version of a printed book etc.).
- It handles a database of course material meeting the international standards (LOM, SCROM, IMS, XML) together with elements, recyclable, nuclear education objects and metadata describing these.
- Its modularised resource handling makes possible suiting the learning process and contents to each individual
- It handles the professional integrated thesaurus for vocabulary occurring in the learning material.

Part of the available LCMS software meets the criteria mentioned above (Baumgartner, Häfele, Maier-Häfele, 2002; Schulmeister 2003), their complex introduction in an operating institution following distance education may need significant organizing and financing.

**Experiences of Dennis Gabor College in Hungary with regard to blended learning**

At the end of the 1980's, at founding Dennis Gabor College (GDF), based on the negative experiences (major part of the enrolled students did not continue his/her studies, did not take the exams) of the first Hungarian training courses following pure distance education (student educating packages), the founders deliberately built in face-to-face elements in the system of distance education. According to Dr. Magda Kovács the director general of GDF then and now: "We were preparing for distance education, but (…) intense occupation with students and weekly examining them in written form according to the required learning material, seemed necessary." (Kovács, 1998). This open system education supplemented by traditional forms of education has been applied by GDF for more than a decade for mass educating information technology professionals on college level. The school has issued more than 5.000 diplomas (March 2004).

It has been proven that effective open-system distance education in masses can be realized only with applying the following:

- open system education adapted to the Hungarian circumstances,
- well-thought and organized methodology, tutor and mentor system,
- learner-friendly learning materials prepared for distance education,
- better utilization of modern teaching technology

in the course of which intense and personal contact with students (consultation, weekly exams) is vital.

Within view of this, since 1992 at GDF education has been pursued in a mixed system, that is in the form of blended learning as opposed to the original idea of Open University. Essential element of the education system is the printed learning material (course book, lecture notes) prepared for distance education and also the personal consultation and practice, which are supplemented and made more vivid with e-learning services using different media (film, CD, Internet).

The course guides provide the program for students, with the help of which they are able to organize and use the learning material contained on the different media. These also define when students shall study each material and proceed on to the next one, also highlight the connections and relations among the learning materials of different technologies (CD, video, print, hypermedia on the web).

In connection with the research titled "Education technology development of program controlled distance education system with the use of the Internet" have been the different student behaviours and strategies analysed by statistical methods (RI-29, 2003).

Major results of the research based on one general computing subject and 2.359 students:

- Taking advantage of the open system education, 46 % of the students was not studying continuously or taking exams during the period of the data collection.
- The ratio of students studying continuously is 54 % (1.278 persons). A greater part of these students (71 %) required face-to-face education, and 52 % met the exam requirements.
- 29 % of the students prepared for the exams on the basis of printed learning material made for distance education (these did not participate in face-to-face courses). A part of these students has better success in taking the exams than those participating in the face-to-face learning, mainly because of motivation, and preliminary training.

Taken into consideration all mentioned above, offering online courses (in these cases students receive printed learning material in their packages as well) are planned for only certain subjects or the part of a subject at GDF. During the first year students of different majors are going to be prepared for web-based learning by one or two online subjects.

At GDF uniformed and integrated web-based distance education services joined by LCMS, have been made justified by the expanding numbers and growing quality of electronic learning material-services

and computerizing the electronic learning material, study-aids etc. of the particular subject into a database and providing these on a unified interface.

In 2003 GDF created an experimental electronic distance system organised on computer with the adaptation of LCMS software for keeping data of the distance education system (including applied codes, forms, guides etc.) having been functioned for over one decade.

This system which meets international standards (LOM, SCORM, XML) is designed to integrate the following major services:

- Unified web-based data providing on GDF learning materials and supplementing data in connection (eg. Internet sources, electronic literature advised, CD) from the data base containing learning material formed for this purpose;
- Online courses accessible on the web, a part of which contains multimedia, interactive, web-based teaching material;
- Development of computer supported electronic learning material;
- Organized, unified electronic communication among the students, members of student learner groups and teachers;
- Helping the learning process through the web (professional tutors, user assistants);
- Electronic dictionary of information technology, the most important words of any teaching material with promptly accessible definition (Kovács 1991,1998).

From 2003/2004 academic year, the specific subjects and education services are introduced in the system gradually.

## Summary

Theoretic basis for modern and effective blended learning, its ICT requirements and the developing practice all came to the level, which makes possible institutional utilization in a mass educating higher education institution following open system distance education. Blended learning could be a useful tool for spreading individualized education services based on different learning strategies.

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