DIMEL – A NEW INTERACTIVE SYSTEM FOR DISTANT E-LEARNING MANAGEMENT

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Abstract. The article presents the basic results of a study, dealing with the problems of e-learning and e-teaching development in the University of Sofia. A new system - DIMEL (Distant and Interactive Management of E-Learning) was implemented by the „Management of Education" training courses with adult students. The courses are part of the continuing vocational training (the qualifications upgrading) of school principals, vice principals and other managing staff in the sector of education. The system DIMEL uses an original interactive training management technology, covering the field of e-learning and e-teaching activities, via digital library logistic platform. The author performs this project research in collaboration with the University Library „St. Kliment Ohridski".

Keywords: e-learning, e-teaching, distant management of training, interactive technology, virtual platform, web-based training, modular system, continuing vocational training

Introduction

We live in a world of dynamic development in every area of social life, including education. In that, traditionally defined as conservative institutional

structure, enormous by size and meaning changes are developing, directed to turning it in a new Lifelong Learning (LLL) system. Changes include the organization and management of education, methodologies, approaches and systems for teaching and learning. Part of them is the most frequently used so called e-learning, which in Bulgarian is translated as electronic training (електронно обучение) or electronic learning (електронно учене), as both terms are used. Generally speaking, the understanding of electronic training includes a process of teaching and learning, using as learning media the new information and communication technologies (the new ICT) and internet too.[1)] More concretely e-learning is the learning work of the trainees, by using software, internet, CD-ROM, on-line learning etc. The implementation of e-training (e-learning) is perhaps the most logical form of innovation in the sector of education by the contemporary conditions - new ICT, unlimited communication etc. That is why the possibilities of this innovative form for reaching qualitative and effective educational process should be used more massively in higher education. This fact determines topicality and importance of researches on the particularity of e-learning implementation in the academic area, as in the frames of traditional organization of educational process and as its alternative – by distant education, web-based courses, using of virtual platforms, etc. In this article results of such research are presented, which brought the creation of DIMEL - an innovative system for distant e-learning management.

Context

This context is connected with the fast development of library services and logistics in Sofia University “St. Kliment Ohridski”, in accordance with the European LLL concept and with the accepted in October 2008 national strategy for its application in Bulgaria. The national strategy focuses on the necessity of promotion of e-learning in Bulgaria and its more popular use and

also in increasing of the qualifications upgrading and career development of pedagogical specialists (teachers) and managing staff - principals and vice principals of different kinds of schools, kindergartens etc.[1)] A significant part of that *continuing vocational learning* (for adults) is performed at the University and is supplied by training resources from its library. After implementation of a new integrative library informational system (Aleph 500) in 2009, the traditional library function of supplying information for adult specialists and supporting their learning and preparation for different kind of exams is already performed in an adequate to the modern circumstances and requirements, innovative way. For this purpose a virtual library platform is applied, which offers different options and usage modes. All informational and logistics activities at the University library „St. Kliment Ohridski" are already performed by digital technologies with an emphasis for a possibility of individual use of the consumers (clients), satisfying their needs, individual interests and preferences. Searching for needed literature, as well as the learning in the library can be performed either in the reading room or distantly – practically from every place, where readers have an access to internet. Traditional and present limits of library services, such as working library time, capacity of the reading rooms, library location, annual take off repairs, etc. are overwhelmed in this way.[2)] So, the University library is registered more successfully into the modern circumstances of higher education and in the new social environment too. Using Aleph 500 clients (adults and students) can work with the informational funds in two ways: first - *in reading rooms* during the working time of library and second - using internet *in spite of the place where they are*, 7 days a week, 24 hours a day. There is no doubt that the second possibility is more comfortable for the students and especially for the adult specialists, but it needs developed skills in using the new ICT.

On 18.05.2011 was organized a round table – 'University libraries and e-learning – good university practices" in which the author took part. The

subject of discussion was the development of library logistics on the ground of the new ICT and the national LLL strategy. A special attention was drawn to the need of more research - projects on the new opportunities, which are developed for academic e-learning (and teaching), as well as the motivation of the students and lecturers for e-training.[2)] In that way the author achieved the idea to make a research on e-teaching implementation, as well as distant and interactive management on learning work of trainees.

Object and subject, aim and tasks of the research

An object of this research is the electronic training (e-learning and e-teaching) which is applied by the help of "Learning resources" module of Library informational system Aleph 500 in higher education and especially in out of auditorium activity of the trainees and the teacher. The research subject is focused on e-teaching implementation in the frames of traditional continuing vocational training organization (post graduated courses and specializations for adults, held in the Lifelong Learning context). The aim of this research is the innovation of the traditional courses organization by a new for the ordinary practice system for distant and interactive management of the out-of auditorium activity.

The tasks of the study are: (a) Theoretically-methodological and practical aspects of e-learning in the specific circumstances of higher education and in the context of Lifelong learning to be researched and the important requirements for its implementation (with the help of "Learning resources" module of Library informational system Aleph 500) to be defined; (b) An innovative system for distant and interactive management of the out-of auditorium trainees and teacher activity to be developed based upon the modern library logistics; (c) An experimental implementation and research of the system under the academic organization of the continuing vocational training (post-graduate courses and adult specializations) to be held and summariza-

tion, conclusions and recommendations in its regular use in the practice to be made.

The research checks the hypothesis that except a modern virtually organized place for learning, the University Library „St. Kliment Ohridski" can be also a non-traditional place for teaching. With the help of the "Learning resources" module in informational system Aleph 500, the University lecturers can use the library as a real and virtual auditorium in order to organize and manage e-learning successfully.

Basic requirements for e-learning implementation

The modern LLL concept (e.g., Papadakis, 2009) requires the transformation of the present schools and universities into multifunctional educational centers, equipped with modern ICT and rich learning recourses available at any time to people who really want to learn. This means the training organization, content and methodology have to be connected to the digital technologies, i.e., e-learning to be developed and implemented extremely. It is considered that it will be a main and sustainable tendency for education development in the XXI century (Катански, 2005). Under the LLL concept is pointed also that the learning process can be performed not only at the traditional for this purpose places – schools, training centers, colleges, universities etc., but, as well as at the so-called non-traditional learning places - in transport media, (mobile learning by traveling), in companies and enterprises, (learning by doing at the work places), in museums, theatres, hospitals etc. The common in those different situations is the need of flexible training organization and of a new pedagogical understanding in which *learning is explicitly legitimized as a main activity* - an activity with leading rule to the training success, quality and efficiency.[3.4)] That means also to be con-firmed the status of trainees as a *basic training subject*. Still at the end of XIX century, the Reformists' pedagogy advanced the view of the active role of the trainees and the importance of their activity in the educational process. However, for the first time in

the LLL concept this view is a main principle, from which important requirements are drawn, including for use of *e-learning and portfolios*, teaching adaptability to the needs, abilities and preferences of the trainees, as well as the concrete conditions in which the learning is performed (Катански, 2003). Especially at the universities learning should be turned into active, conscious and self-guided activity and at the center of this process not the teachers but the students should be fixed – with a clearly realized active role, with abilities and taken responsibilities for its own learning.

This does not mean at all that the LLL concept underestimate the teaching. It is just regarded in a more different plan from the traditional one – as an activity which supplies not so much learning information but much more orientation, methodological support and management of the learning process. The role, functions and the teachers' tasks under contemporary conditions will change fast. Their interaction with the learners will obtain a new meaning: it will not be only directly performed in real time, but by the new ICT will be performed in different time, at significant distance, in different sizes. The trainers themselves will become mediators, animators, facilitators and moderators in the system of training. (6 The teaching gradually will release itself from its extremely informational structures, based on traditional learning and will start to pay more attention to its logistics role in education, to the support and development of skills and competence of the trainees to learn effectively. With the help of new ICT it can freely "pass" outside the doors and walls of classrooms at school, out of auditorium and laboratory rooms in the University. Its beneficial effect can reach the people who want to learn at a place they are, at a convenient time, in a manner corresponding to their preferences, needs and capacity (Катански, 2003).

It should be mentioned in this connection that we are talking about not only about the transformation of learning into e-learning, but as well about turning of teaching into e-teaching, i.e., into electronic logistics and management of learning, as we have already mentioned, at nontraditional for this purpose places. It is a logical question though that if is not possible teaching to be used at the traditional places for learning at universities, including the most typical place for learning – the University library. For the time being at the University library there is not enough teaching logistics and a possibility for management of learning process. It is relied upon the instructions, given by the lecturer and tasks obtained at the moment of teaching dur-

ing lectures and exercises, consulting with the library staff and on the capacity of the trainees to manage effectively their own learning. In many cases though it is not enough and the results of different forms of control and tests confirm the necessity of more systematic teaching support. Up to now in Bulgaria this issue was not specially investigated and developed and under the broader context of Lifelong learning. In this way an interesting research problem was identified – the problem of developing distant and interactive management of learning, which is performed by the bachelors, MA-students, PhD-students and the adult learners in the University library. The main question of the research is how the teaching can interact with the innovated library logistic in order to provide more effective out-of-auditorium learning activity of the trainees. It is clear that the problem is important and topical and it plays a significant role for the higher education quality.

Describing of the e-learning management system

In accordance with the aim and objects of the research was built a conceptual vision for the innovative system DIMEL. The name DIMEL is an abbreviation of Distant and Interactive Management of E-Learning. The research project connects some previous, older investigations of the author – about the modular system, andragogy and management of continuing vocational training[5,6] (Катански, 2003; 2008).

DIMEL aims

The aims of the innovative system are connected with innovation of the traditional academic courses organization (in that case - courses for continuing vocational training) due a qualitative and effective e-learning. In particular, using the abilities of digital technologies DIMEL creates some new conditions for distant and interactive management of the trainees out-of-auditorium learning activity and for confirmation of the active role of learners in the training process, stimulating their skills for an independent and successful learning, for research and development of themes, for development of Power Point presentations, courses projects, etc.). An important aim is the creation and development of specific competence in the trainees – for identification and description of learning results in a special portfolio (as a specific memory

of learning activities), as well as an ability of more critical self-evaluation of the learning achievements. Another important aim is the creation of conditions for validation of the contemporary academic style of teaching, emphasizing the teacher's abilities for distant logistics and management of learning. At the last (but not the least in significance) place, the system DIMEL aims approving the teachers' evaluation activity – when credits are estimated, as well as the objective estimation of the trainees' readiness for exam and of their competence in the course problematic.

DIMEL principles

Individual approach – the trainee is in the center of training, the lecturer contacts each of the trainees, the speed of learning depends on individual abilities and efforts of each trainee; *Transparent learning aims* - the overall aims of the course are adequate to the target group and are formulated understandably for the trainees. In spite of that fact, the aims are discussed obligatory by the trainees, and the lecturer helps every trainee to define additional, specific aims; *Learning content* is presented in appropriate for self-learning forms and includes: learning and examination programs (conspectus), learning textbook and portfolio, written developed themes, self-control tests, necessary course information, etc.; *Team* logistics and learning management, expressed in coordinated activities of the teachers, library and IT specialists, as well as the trainees for organizing and management of e-learning; *Interactivity* – the management of learning turns into self-management using the special portfolio, which is created and filled in by the trainee on the basis of the prepared by the teacher electronic textbook; *Synergy* – the interactive teaching enforces active learning and a synergy process, of successful interactivity of the teachers and trainees, in which way better training results are achieved.

Application stages (periods) of DIMEL system

Pre-learning period

Pre-learning is the period from the decision taking point for course conducting of learning by DIMEL system to its beginning. During that period some preparatory activities are held, as follows: (a) *Preparation of a learning program* - academic standards, profession standards, normative documents, learning plan, credits number

and the conditions for their recruitment by the trainees are analyzed. A special attention is drawn to the training needs, connected with the standards etc. Concrete aims and objectives are outlined and the main learning modules are designed in the content of each course. On that basis the main learning program is prepared and affirmed by the accepted academic procedure; (b) *Development of the learning content* – in accordance with the learning program, different kinds of electronic formats are developed for presenting the learning content, as for this purpose module design is used. Successively the learning textbook and the connected with it portfolio are developed, as well as the basic modules and themes (with objectives and tests), Power Point presentations etc., which establish the ground of the course. Different materials are added to it, which have been chosen and adapted by the teacher in accordance with the aims and objectives of the learning and the trainees' abilities – articles, reports, scientific notices, parts from books, etc. Information about the course and the teacher is included too, as well as the training schedule etc. In accordance with the determined in the learning plan and program number of lessons, seminars, practices and other training forms, the teacher develops the course as a subject, time schedule, procedures, learning ant teaching methodology; (c) With the help of IT specialists *the DIMEL learning content components are established as electronic objects* in the corresponding course in the "Learning resources" module of ALEPH system in order to be ready for use.

The beginning of the course

The beginning of the course is an important element in the system implementation. It is being organized and held both by the teacher and library specialist in the multimedia reading room or in another appropriate place in the library. The course starts with presentation of ALEPH 500 library system as a virtual place for learning resources asking and finding. The presentation turns into training for development of abilities for using the ALEPH system as a virtual learning media, which creates readiness and self-confidence in the trainees. After that, the teacher acquaints the students with the DIMEL concept - how the library can be used as untraditional place for teaching. Based on the new ICT, the module approach and constructivism theory possibilities for distant and interactive training management are clarified. A special

attention is paid to the learning textbook and to the process of its transformation into portfolio of the undergoing learning activity. The portfolio requires more training experience from the trainees and due to that reason the use of DIMEL system is recommended to start at least from the second semester of bachelor degree, when the students are already acquainted with the classical teaching and learning at the University and exams from the first examining sessions are held. According to the adult students the use of the system depends on the level of their competence and experience in the new ICT.

Interactive training period

Conceptually DIMEL is intended for distant management of e-learning, which doesn't necessitate changes in traditional training organization at University. The system tries to preserve the academic traditions and rituals of the lectures, seminars and practices, as well as of the out-of-auditorium learning activities in the University library reading rooms. At the same time, it connects them with the modern library logistics and with the contemporary methods of teaching and learning, including at the field of distant e-learning. The idea is of linking the positive elements of the traditional and the distant learning as their faults are minimized significantly. In this way is achieved a sensible balance and possibility for achievement of interactivity, as the both sides in training (teacher and trainees) are active and cooperative. That is way DIMEL can use the already accepted programs and auditory activities in each department – lectures, seminars and practices for bachelors, MA students and adults. Innovative in this case is that, using the module "Learning resources" the trainees are supplied by the new information and in this way in the limits of the so called direct connection in the training, the teacher is freed from the too informative teaching. However he is directed to something more important – logistics in the system of learning, as well as various auditory and out-of auditorium activities of the trainees. On the other hand, they are also at disposal of alternatives for their work – to attend lectures, seminars and practices, to prepare by themselves as they use electronic learning resources, to research and develop certain themes as they write new texts and make Power Point presentations, as well as (after consulting and agreement with the teacher) to work independently over a course project, which can function as an

alternative of the exam, etc. In order interactivity of the management to be achieved and transparency of the learning work, the trainees should mark all their activities (auditory and out-of auditorium) and the achieved results in the portfolio. The reflection should be realistic, with a clear point to the made – the spent time in the reading room and internet, read materials lists, annotated content, developed presentations and discussions platforms, biographies development on course content, etc. When it is necessary some authentications of the time and learning activities can be made - either by the teacher or the library. At the same time the trainees' achievement is proved by different forms in auditorium learning activities (in lectures, seminars and practices) - by asking teacher (questions), answering questions given by the teachers to the auditory, prepared materials from researches on given by the teacher tasks, self-initiative for reflecting of important for the course problematic events, etc. In this way the realization of feedback in training becomes more possible – as a continuing monitoring and control during the course.

Course finalization

The process of the interactive training (and self-training) finishes with the equipment and formation of a portfolio copy from the trainee and giving it to the teacher for analysis and evaluation. In the special control list in the portfolio, the teacher describes the training results – credit charging, test admission, course project admittance etc., including giving directions and instructions of the corresponding trainees, additional tasks, etc. The final exam is held too and its results are reflected in the examination protocol.

Post learning period

The post learning period is the time from the course finalization (the final exam conduct) till the trainee entering into pre-learning period of a new DIMEL course. During this period the teacher and the students can perform different activities - the finished course and the achieved results analysis, identifying of certain changes (improvements) of different character - corrections, additions, actualizations etc. of the learning content, of the tools, of procedures, orientation to new objectives etc. In this way logically is made a transition to a new pre-learning period and realization of

adequate to the conditions, demands and needs of the new course activities by the trainer and trainees.

Conclusions

The present research achieved the set aim and tasks. It showed clearly, that the use of the connected with modern organized library logistics e-training is a perspective trend for innovation of the educational process at University. In that particular case (in accordance with the set object of the research) the e-teaching was inscribed successfully in the traditional organization frames of courses for post graduate qualification and specializations for adults. The research confirmed the hypothesis that except as a modern organized place for learning, the library can function as an untraditional place for teaching too. Using module "Learning resources" of the information system Aleph 500 the University teachers can use the library both as a real and virtual auditorium to organize and manage successfully the e-learning of their trainees.

The author's view - that (even not enough explicitly), the library information system Aleph 500 legitimizes the learning as a basic activity in the training, and the student status as a subject of training was conformed. This principle is important in conditions of academic training process and the students should be practically put in the centre of this process – with a clear conscience of their active role, with created abilities to perform it and with a real taken responsibility for their own training. Particularly important is that these modern views to be designed in the out-of auditorium learning activity, which in its predominant part is connected directly and indirectly with the University library. Putting new ICT into practice, the library creates some necessary conditions to conduct e-learning – at the place of the library reading room and/or distantly via internet. In DIMEL objectives, innovative impact on learning is included too. In accordance with the set interactivity of management in trainees, a specific competence is created and developed – for self organization and self control, for more critical self evaluation of the achievements, as well as giving the teacher adequate docimological information. This is achieved by using an electronic textbook created by the teacher, which in the learning process is being transformed into a special portfolio, designed to form and describe the performed by the students learning

activities and the achieved results. The portfolio arranges and documents everything important which was made by the students: acquaintance with the given by the teacher literature and acceptance of the taught material, independent search, finding and research of other appropriate literature sources, of the categories and terms in the field, books annotations, articles and reports descriptions etc., a new content creation of the corresponding themes in the electronic textbook, presentations and course projects developments etc. This various activity is described and arranged by the student as facts and proofs of achieved results, and at each stage of its overall educational and vocational development (oral and written test preparation, course project development, diploma thesis, etc.) the student completes a copy of the portfolio as a peculiar personal report and gives it to the teacher. Precisely on that particular data, the teacher implements his control and evaluation functions as much competently as possible.

However the second part of author's view was confirmed too – that the created by Aleph conditions are not enough according e-teaching implementation. Before the accomplished research there was a lack of the answer to the question – how to be performed, using the module, an e-teaching, what it will represent and how the learning process to be managed successfully in order holistic and quality e-training to be performed. The research precisely helped for the practical solution of this question.

In the research process were investigated basic theoretical and methodological problems and aspects of e-learning and some requirements for its use were defined in accordance with the LLL concept. In the concrete case, the implementation of e-training at University is bound with the development of skills of the teachers of different ages for a successful use of the library learning resources by the new ICT. The teaching itself is viewed as an activity, which supplies not so much learning information, but orientation, methodological support and an overall distant management of the training process. It is realized as in real as in different time, at significant distances, in different forms. As it was already said, releasing itself from its excessive information functions, performed under the traditional training conditions, e-teaching stresses more on its logistics function, on development of motivation, skills and competence of students to learn independently and successfully. The research shows, that the performed as discreet activity and logistics, (with the help of ICT) teaching pro-

cess, reaches the people who want to learn where they are, at a time convenient for them, in a manner which corresponds to their preferences and abilities. It should be mentioned in that connection, that the teachers acquire new roles in training – as *mediators* (connectors between specially prepared electronic learning resources and the trainees), *animators* (organizers of a constructively independent learning in the near development zone of the students), *facilitators* (creators of necessary additional conditions and prerequisites for a successful e-learning) and *moderators* (regulators and managers of learning). The developed system for interactive training management reports these new roles and innovates the teaching as a modern academic style, it affirms the accent on the teacher's skills for distant logistics and management of learning.

Practically DIMEL system succeeds in connecting the teaching and learning in an effective and oriented to the people's needs, e-training.

NOTES

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