

CREATING PREPAREDNESS OF TEACHERS AND STUDENTS TO THE IMPLEMENTATION E-LEARNING OR DISTANCE LEARNING

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***Abstract:** The article is devoted to the questions of improving the quality of scientific-methodological and organizational support of learning process of internal and external learning by using modern information-communication and distant learning technologies in pedagogical university, forming of e-skills for e-learning for teachers and students. The results of learning of the teaching staff of the university show the will of lecturers to implement e-learning in the university. The results of practical implementation prove the high efficiency of the proposed e-learning course, allow to make implementation of e-learning and distance learning in the university.*

Keywords: e-learning course, pedagogical university, information-communication, distant learning

INTRODUCTION

Nowadays the use of e-learning technology in education is put forward on the first place all over the world. Especially it is the most actual for higher educational establishments, where the advantage of modern educational technologies, in particular technology over the traditional system of education is observed. Among the main features of e-learning are: the complexity, the consistency (a complete coverage of target groups, the system solution of organization and provision of e-learning issues), the development of modern educational technologies based on the information educational environment: training in collaboration, problem and project-based learning, creating students' and teachers' portfolios, etc. (Hrom'yak, Vasilenko, Galan 2011, Smyrnova-Trybulska 2007).

It is important to understand that the implementation of various technologies and organizational models of e-learning requires not only the development of information and communication technologies but also the major organizational changes, innovations in personnel policy, improvements of the methodological framework of the whole education process, as well as the development of the teaching tools, which will correspond the aims of modern education and the level of modern ICT. The analysis of the problems which arise on the way of the effective use of ICT in the higher educational establishments during the educational process has shown the lack of systematic approaches to their solution.

Here is mentioned the balanced coordination of such subsystems as, organizational, regulatory, infrastructural, educational, employment and financial support for implementation of e-learning. The consistency in matters related to support ICT in education on updated level is particularly important due to the deregulation of the velocity of ICT changes, as well as educational technologies and the level of ICT university teaching and administrative staff's competencies.

The implementation of e-learning through the communication network in Ternopil National Pedagogical University for students of different forms of learning can be interpreted as a positive example of effective use of ICT in the learning process. In particular this primarily concerns the full-time students. The extent of this project is confirmed by the fact that more than 5,000 students and more than 500 teachers from 12 departments / institutes of TNPU are enrolled in it.

1. THE BACKGROUNDS OF IMPLEMENTING OF THE ELECTRONIC LEARNING AT THE UNIVERSITY

The successful implementation of e-learning is possible due to the creation and operation of corresponding infrastructure, which is responsible for the realization of organizational, methodological, technological and regulatory activities and during the introduction and implementation of e-learning at the educational establishment. Among the main elements of organizational support for e-learning system has always been the desire and will of the University administration and their support given to the specialized unit — The Centre of Distance Education and New Educational Technologies, whose main task is to coordinate the organizational and technological support of the use of e-learning at the university.

Creation of the necessary infrastructure has begun in the 90s, so the implementation and the development of e-learning took place gradually. We can point out the following stages of the process:

- the organization of computer laboratories and the launching the course "Modern information technologies in the educational process" for all first-year students;
- the completing classes with multimedia computers;

- the designing and creating of the corporate university network (consolidating classrooms and educational buildings into a single network);
- the implementing of the server platforms (creation of the University website, email, and the control access to the Internet);
- the issuing of the courses in their electronic versions on the university library server;
- the introduction of the use of testing technologies in order to monitor the students' level of knowledge, the development and implementation of automated test control "The Examiner";
- the enacting of the experimental server-based e-courses by the system Moodle for students of the Physics and Mathematics Department of the University;
- the carrying out of the scientific seminars and conferences devoted to the issues of electronic and distance learning;
- the enacting of the server with e-courses for the students of the university on the basis of Moodle;
- the conducting advanced training courses "Methods of creating e-courses in the system Moodle» for more than 500 teaching staff of the university;
- the creation of the Centre for Distance Education and New Educational Technologies;
- the covering by the network Wi-Fi of the campus;
- the conducting of the online conference "E-learning in the educational process: concepts, problems and solutions" by the Department of Informatics and methods of teaching (2010).

2. THE FORMATION OF THE BANK OF ELECTRONIC COURSES

The creation of the bank of electronic courses is based on their modularity for different educational levels - training, retraining and advanced training as well as various teaching scenarios for learning for all forms of study — full-time, part-time or distance. The process of creating e-learning systems (ENK) in TNPU took place in three successive stages:

Step 1 — Training of the university teachers during the training seminar "Methods of creating e-courses in the system MOODLE» covering 72 hours. The workshops were held at the TNPU by the lecturers of chair of computer science and methods of teaching according to the order of the Rector of the University.

Stage 2 — filling ENK with the electronic didactic and teaching resources in full according to the structure, subjects and the curriculum.

Step 3 — approbation of the ENK during the educational term. At this stage, a university teacher uses the ENK materials to educate students and makes all necessary adjustments to the course of study.

Creating the web resources for educational purposes involves all university teachers — they often develop the content of the course and ICT professionals of TNPU help them to design and convert the content into Moodle platform as well as provide other engineering works. Very often teachers create their own web resources for their subjects.

Considering the creation and using of electronic resources there should be considered one of the most complex subsystems in the whole system of e-learning at the university, which is designed to the staff. The difficulties associated with personnel provision with the implementation of e-learning into the educational process, largely depend on the financing of this trend at the university. But this is only one side of the problem. Among another problems are: the conservative attitude of the aging staff, and the lack of ICT expertise and the great teaching load of teachers.

Three years ago there was initiated a special project that provided the mandatory training of all teachers and the heads of departments to acquire the information and communication technologies, which are necessary during the learning process in order to overcome staffing problems at the university. In addition, all of them took the specialized training program (72 hours) — “Methods of creating e-courses in the system MOODLE”; “Computer testing”. The training was provided by the department of computer science and methods of teaching.

During the training more than 500 teaching and managerial staff of the University has increased their competence in e-learning. This allowed all university chairs, departments and institutes to begin to develop e-courses and make the first attempts in using the e-learning technologies while working with students. It is the significant pilot project, the aim of which was to create a complete set of web resources for undergraduate specialty "Informatics" (35 subjects). The experience of implementation of e-learning at the History Department was equally valuable. All teachers of the History Department have been trained to create distance learning courses for the platform Moodle, and then they developed 26 distance modules in English, which provide the study of the programs for all university students of different specialties.

However, the teachers' motivation is the most important aspect of the efficient use of e-learning and other ICT in the educational process. This is especially true because of the aging university research and teaching staff in Ukraine.

The motivation of TNPU teachers to improve their ICT skills in order to participate in the creation of Web-resources and the usage of the e-learning/e-testing systems for students is predetermined by the real improvement of the quality of education and by the relief of laborious process after the control of students' performance. All that teachers feel during their first steps of the e-learning implementation in the learning process, and the results are visually can be obtained during the study. In addition, the availability of the certificate about learning, and the using the created

web resources in the learning process are taken into account when the competitive selection for the university teaching positions is conducted.

The quality control of the all developed resources is provided by the implemented in TNPU certification system web resources, which evaluates the didactic, methodological and technological components of all elements of the bank.

3. ELECTRONIC STRUCTURE COURSE

All electronic training courses are hosted on a server of the e-courses of TNPU named after Volodymyr Hnatiuk. URL-address: <http://elr.tnpu.edu.ua>. The work of the portal is organized on the basis of platform MOODLE. MOODLE (Modular Object Oriented Distance Learning Environment) is the distribution which is widely distributed freely according to the principles of the Open Source license.

Due to this system the student is able to read the online training material that can be presented in the form of different types of information resources (text, video, animation, presentation, e-book), do the tasks and send them to examine, pass electronic testing and more. The teacher has the opportunity to create their own e-courses and conduct training students to send messages, share, collect and examine tasks, maintain electronic registers, estimate and modify various course resources, etc.

The access to the resource server of the e-courses of TNPU is personified. The students and teaching staff get their usernames and passwords from the server administrator. Every student and staff member has access only to e-learning courses on which he/she is registered in order to participate in the learning process. All the users are personally responsible for keeping the confidentiality of usernames and passwords.

The electronic training courses are designed on the platform MOODLE, and can be represented by the electronic resources of two types:

- a) the resources assigned to students submitting the content of educational material, such as electronic lectures and multimedia presentations of lectures, guidelines, etc.;
- b) the resources, which designed to ensure the revision of the material studied, the formation of skills, the self-assessment and the evaluation of students' educational achievements, such as tasks, tests, surveys, forum and more. All e-learning courses are hosted by electronic courses TNPU have a unified structure that includes: an overview of academic disciplines (work program, evaluation criteria, print and Internet resources, glossary, news, blogs, if necessary, forums, chat rooms etc.);
 - the teaching materials for each module:
 - the theoretical material (multimedia presentations of lectures, structured e-learning materials, electronic lecture notes, a list of printed and online sources, if necessary audio, video and animated learning resources);

- the practical (seminars, laboratory) work (content, guidelines for implementation, the list of individual tasks, the presentation of results of performance and the evaluation criteria);
- the tasks for independent work of students (additional theoretical background, objectives, guidelines for implementation, the list of individual tasks, the presentation of results of performance evaluation criteria);
- the control module (test questions, the task of evaluation criteria and the way the results of performance tests for control);
- the materials for final test (control task or a final test for the monitoring of student per year);
- the additional materials.

The components of e-learning courses include the following educational materials:

General information about the course:

The Educational Programme. The program states the goals and objectives of the course, its content, which is displayed by the name of each module or topic and accompanied with annotations, the number of hours of study designed for each module.

The criteria of evaluation. This contains the information about the methods of evaluation of students' educational attainment in the specific academic discipline, both current and final. Every module specifies the distributed evaluating points for stated assignments corresponding the grading scale.

The printed and online sources. This resource offers basic, advanced printed sources on the subject, and Internet resources.

The Glossary. Here the basic terms of the training course and their definitions are listed and interpreted.

The News. The news is used by teachers in order to announce the events, reports about the changes in the training course and other information relating to the course.

Course contents include the following materials:

The theoretical study material. It includes the following mandatory training resources:

1. the structured electronic materials, the content of which reflects the logic of the study course and provides students with theoretical information according to the module in the whole;
2. the multi-media presentations of lectures;
3. the additional e-learning materials: flash videos, audio and video materials, reference and regulatory documents (forms, templates, standards, regulations, laws, etc.).

Practical (seminars, laboratory) work. There is a list of laboratory (practical seminars) works in the form of individual or separate resources available in the

course materials. Every work includes the detailed instructions about the objectives, which provide the development of certain skills and abilities, which are necessary for mastering topics, the guidelines for their implementation, the presentation of the results of the work performed, the criteria for evaluation of every task. The laboratory work, which requires the necessary special equipment and real objects is usually performed in a classroom, as indicated in the formulation of the problem. The educational materials for practical (seminars, laboratory) work is recommended to create as pdf-files, links to files of various formats and tasks. The result of the executed laboratory (practical) work the students can send to their teacher electronically on the server of electronic courses or submit them in paper form or orally. After reviewing and evaluating assignments teacher puts down the points into the electronic register ENK.

The tasks for independent work. The major part of the training hours in the study of each discipline is given to the independent study. The materials of electronic educational course contain the specially designed tasks for self-fulfillment and other methodological material in order to ensure the quality of students' performance in the discipline. The task is presented in the following form: the text of the task, the presentation of results of performance evaluation criteria, the deadline for executed tasks, the list of additional printed and online sources. The results of the independent student's work can be sent to the teacher electronically on a server of electronic courses or submitted in paper form or orally. After reviewing and evaluating assignments, the teacher puts down the points into electronic register ENK.

The Modular control. To assess the students' knowledge and skills acquired during the course of the study for each module special tests or tasks are used. The results of evaluation of academic achievement of every student are automatically entered into the electronic register after testing.

The Final control — provides the availability of the materials for students' training in order to pass tests, credits and examinations (control task or final test). The results of students' learning assessments are recorded in the electronic register ENK. In the electronic register the lecturer has to establish the categories for evaluation of all kinds of educational activities and determine their volume (in percentage) in accordance to the final assessment in the discipline.

4. EXPERIMENT

In order to determine the teachers' attitude to implementation of e-learning in the educational process, their commitment to the creation and usage of e-courses and the ways to improving of the implementation of e-learning in university the survey was introduced in the form of questionnaire.

During the survey two main methods were used:

- the sample design among faculties that use distant learning (home users for sending e-mail, printed form);
- the questionnaire allocation on the server of TNPU e-courses (on-line survey).

The participation in the survey was both voluntary and anonymous. We received responses from 48 teachers working at the seven chairs of TNPU: the chair of social work, the chair of social pedagogy, the chair of mathematical analysis, the chair of mathematics and methods of teaching, the chair of theories and methods of teaching natural sciences, the chair of chemistry and Geoecology and the chair of teaching environmental sciences. The average age of survey participants is approximately 38 years old. During the survey there were distributed for about 50 printed questionnaires, (of which 36 responses were received), 14 teachers refused to answer questions from a variety of reasons (lack of time, prejudices, etc.). On-line responses were received from 12 respondents.

Most teachers believe that the structure and content of the educational material is changed during the use of e-learning (96% of respondents), but none of the respondents did not indicate the reduction of the content. Most of the respondents (57%) indicated that the structure and content of the educational material has improved, 32% of respondents said that the structure and the content had expanded, and about a quarter of respondents believe they are updated and supplemented in comparison to the traditional way of training.

The issue of educational interaction between teachers and students are frequently discussed in professional literature (Smyrnova-Trybulska 2007, Kuharenko 2007, Polat 2001).

In the traditional way of teaching a sustainable stereotype of psychological and educational interaction has been formed. The e-learning requires from teachers to search for the new approaches (psychological, social, technical, methodological) in order to communicate with the students because of the complexity and multidimensional of this process. It is confirmed by the responders' responses. Only 18% of responders say that communication is "teacher — student" has improved in comparison to the traditional way of training, almost in twice as many (40%) of respondents believe that it is getting worse.

A significant proportion of so-minded professors are the participants of the survey, who represent the chairs of social work and social pedagogy. They fully specify in their unambiguous negative comments the loss of live communication. The simultaneous improvement (the availability of modern methods of communication, their great variety, greater freedom for both students and teachers, the possibility of self-expression, the active role of the student, the intensification of communication) and the deterioration of interaction (the loss of eye contact, the excessive autonomy of students, the weakening educational function) was confirmed by about a third of all the respondents.

Answering the question about the directions of e-learning application, the majority of our respondents (53%) believe that e-learning is useful in the process of the study of almost any disciplines, 32% — only for the humanities, and the rest 15% — for studying disciplines in Nature.

Proving that they have designed and approbated the electronic courses in the system Moodle: “Marketing in Education”, “Education for Special Needs”, “Social foundations of guidance”, “Methods of Teaching Mathematics”, “Projective geometry”, “Biochemistry and Molecular Biology of the Cell”, “Environment” and so on.

The results of the survey as to the methods, which are the most suitable for e-learning, confirm the advantage of the following learning methods: searching, planning, researching, collaboration, problem-solving. The above mentioned methods by the survey are actively used in the learning process by all the respondents.

The problem of availability of the primary skills of students while working with distant course has clearly shown the lack of students' preparedness to work independently. When answering this question 89 percent of respondents confirmed the need to develop students' skills of independent work. Almost equally were divided the opinions of respondents who believe that students feel lack computer (29%) and communication (21%) skills. Therefore, we consider it to be advisable to organize the prior psychological support and technical support (e-mail, forums, blogs, etc.), which will be appropriate in order to overcome such obstacles on the initial stages of learning.

The problem of accurate identification of students with remote control expertise is relevant to the majority of surveyed teachers (92%). In order to avoid the fraud by students, most respondents use in their practice certain time restrictions on the fulfilling tasks, select task, demanding creative nature, and in case of doubt — the responders organize repeated oral questioning of students in individual classes. It should be noted that American experts, although they have no examples of fraud attempts, use special methodology to verify authorship (discussion, custom issues, testing, visual contact, checking for plagiarism). (Polat 2001)

The questions about didactic elements which are crucial for the success of e-learning has shown that the teachers consider as the main elements first content, methods and control (32%, 68%, 39%), and only then elements mentioning the purpose and structure. Although these elements are inextricably linked (thus, for example, the form of training defines the methods and tools, the aim and objectives influence the content, etc), however, there is the difference in many aspects between e-learning and traditional one, which leads to a shift in priorities.

In the list of factors that prevent teachers to use e-learning in full in the first place are lack of computer skills (almost half), then — lack of desire and material interest (25%) are mentioned. Some teachers consider that other factors such as

professionalism, creativity, innovation, communication skills are not crucial specially for them. Such responses indicate inadequate computer literacy of teachers and thus, partially explains their biased attitude to their innovative technologies.

Among the factors that promote e-learning in higher education, which were identified by our respondents are the following: information (21%), collaboration (28%), fellow-innovators (10%). However, the highest percentage scored the factors that can be considered as the significant for our university — namely, methodological and technical assistance (34 percent) and administrative support (38 percent).

The impetus for the rapid development of e-learning at the university was conducting training courses “Methods of creating e-course in the system MOODLE”, which were held for staff of TNPU by the lecturers of the chair of computer science and methods of teaching.

Answering the questions about the objective and subjective obstacles in the promotion of e-learning also confirmed the positive attitude of the university administration to this problem as far as the administrative factor was not mentioned in any questionnaire. However, for about 50% of respondents believe that primary obstacles for the development of e-learning is the lack of professionals. This suggests that the administration should not stop there and take further steps to successful implementation of e-learning in the educational process, to form a specialized structure responsible for the development of internet technologies, which will constantly provide teachers with the effective support and assistance in their usage of innovative technologies.

The financial and mental factors were noted by 34% of respondents. These data are consistent with the studies carried out by American researchers (Oblinger, Hawkins 2005).

CONCLUSION

The study showed that the main positive experience acquired by TNPU as for effective usage of e-learning in the educational process lies in the systematic combination of administrative decisions, institutional mechanisms for coordination between all departments of the university and the motivation of the main participants of the project. The impressions of university teachers about e-learning in general are positive, they are ready for its usage and implementation in the educational process. The main reasons for the complexity of implementing e-learning is a new form of interaction between teachers and students, time-consuming set up in the courses during e-learning, technical factors.

Today every student of TNPU has access to a local network and the Internet. For teaching purposes and didactic support of e-learning bank web resources for educational purposes, including distance learning courses and individual elements

such as training programs, multimedia lectures, practical assignments, tests, business games in the university is established. Taking into account the pedagogical profile of the university, the unique place among web resources belongs to the virtual resources based on Web 2.0 technologies.

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