PROFESSIONAL TRAINING TEACHERS UNIVERSITY IN E-LEARNING

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Abstract: *This article shows models of e-learning implementation in higher education. This article describes experiences and approaches in deploying the e-learning course „Technology of remote online training" using the LMS Module platform, Google Apps for the professional training of teachers in the Ternopil National Pedagogical University, named after Volodymyr Hnatiuk.*

Keywords: e-learning, distance learning, teaching models, professional training of teachers, LMS Moodle.

INTRODUCTION

E-learning allows society to prepare the right amount of essential personnel in minimum time and at minimum cost. This is recognized as a priority in the reform of educational systems in many leading countries of the world, such as the U.S., Great Britain, Canada, Germany, France and others. UNESCO experts agree the requirements of today's information-driven society can be met using e-learning as a technology that focuses on the modern style of education. (Dendev 2013).

Electronic studies (e-learning) are studies with applications of information and communication technologies and electronic educational resources. UNESCO specialists define e-learning as the process of acquiring knowledge and skills through the use of information and communication technologies (ICT) (*Summary Report* – UNESCO*, 2006*)

The main factors to introduce e-learning in universities are:

- The necessity to increase the efficiency of work in university;

- The necessity for improving the quality of studies;

- The need to attract more competitive students.

Another important argument for the active use of electronic studies in universities is to meet the conditions of a new Ukrainian Law „On higher education” (*A law of Ukraine „On higher education”, 2014*). This law outlines reduced lecture time, thereby, increasing and widening different forms of independent studies.

It should be noted that:

- e-learning allows for education among different age groups; it is an instrument for those who aim to further increase their level of knowledge despite their age, previous level of education or experience

- with e-learning it is possible to contact people in different time zones and collaborate with them to exchange and master each other's knowledge;

- e-learning is an enormous informational field with flexible access to a wide variety of educational materials;

- e-learning is independent and mobile;

- e-learning is an orientation on expanding innovative methods and technologies. (*E-Learning: myths, possibilities, prospects, 2014*)

The scale of applications of electronic studies grows due to such possibilities. Modern educational systems are oriented on e-learning. The main aspects of introducing e-learning in higher educational establishments are:

- expanding the role of teachers;

- a change to competitive studies;

- attention to open educational resources;

- more deployment of mixed (hybrid) studies;

- use of collaborative technologies.

1. PROBLEMS OF IMPLEMENTATION OF E-LEARNING AT THE UNIVERSITY

At the same time, the process of introducing e-learning in Ukrainian universities is accompanied by many different problems. Professors distinguish such problems related to introducing electronic studies as:

- arbitrary terminology in the industry of e-learning;

- absence of connections and collaboration between school and university sectors;

- an increase of data volumes in networks, thereby complicating the professor's work;

- absence of normative base;

- increased attention to technology, but not to educational process;

- appearance of cloudy technologies lead to the use of new pedagogical approaches that have not yet spread among teachers;

- low quality of electronic studies is not equal to its potential possibilities (*About distance course „Blended Learning", 2015*)

Considerable attention of researchers is drawn to the quality of e-learning. Some researchers state that the specifics of electronic studies improves quality. (Vlasova 2014) It all depends on their opinion on the student's planned time and prioritization of their work.

Other scientists, disturbed by the absence of progress in quality of electronic studies, offered the Manifest of „serious electronic studies", an aim of which is a more exact formulation of goals for providing a high quality electronic studies. (Allen, Dirksen, Quinn, Thalheimer 2014)

Formulating goals of e-learning:

- values of traditional e-learning: an accent on content; efficiency for authors; focus on attendance; „delivery" of knowledge; testing facts; occasional events; constructive feedback

- values of serious e-learning: concentration on productivity; meaningfulness for students; fascination; authenticity of context; reality of solutions; space of practice; reality of consequences.

In the Ternopil National Pedagogical University, we conducted a study in relation to the slowing of the introduction of e-learning in the educational process of the university. This study led to the development of an adapted distant course training of teachers in the field of e-learning.

450 teachers belonging to all faculties of the university took part in the research study. The main methods undertaken in the study were: comprehension of literature and normative documents in the field of e-learning, supervision, monitoring, study and generalization of pedagogical experience, verbal and writing questioning of teachers, testing. Google Apps and LMS Module were mainly used for organizing scientific research.

The first stage of research consisted of the establishment of principal reasons of slowing the implementation of e-learning in the educational process of Pedagogical University.
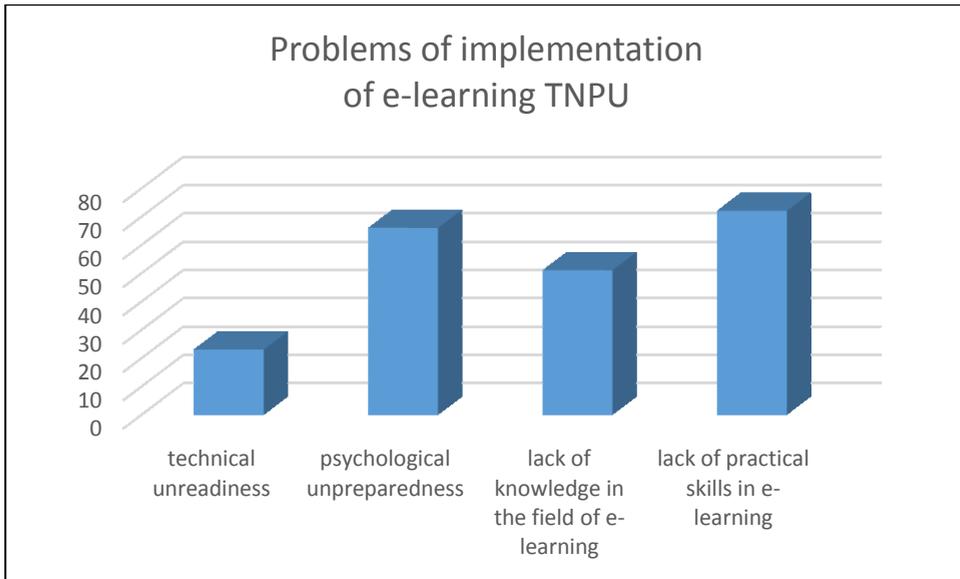
Problems of implementation of e-learning TNPU

Figure 1. Reasons of slow implementation of e-learning in an educational process

Source: Own work

Recognition of mentioned problems provide an opportunity to define further work of Pedagogical University as the center of preparation of modern specialists (both teachers and students) in the implementation of e-learning in an educational process.
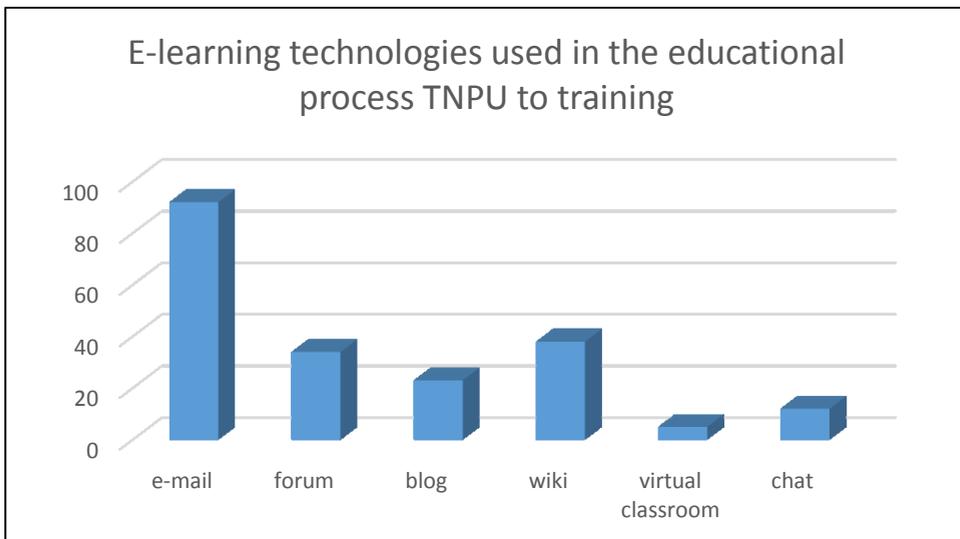
E-learning technologies used in the educational process TNPU to training

Figure. 2. Technologies that was used by professors to increase of their qualification in domain e-learning

Source: Own work

In our study, questioning was conducted concerning determination of technologies and usefulness of e-learning in practice. 51% of professors mentioned an absence of necessary knowledge in implementing e-learning into their courses.

From the results of research it was evident that professors use both asynchronous and synchronous forms of communication technologies. Asynchronous technologies are most used: e-mail, blogs, Wiki, forums. Synchronous technologies are used less in an educational process, such as virtual classes and chats.

At the second stage of research the task was finding and developing a model of implementation of e-learning specifically adapted to the educational process of Pedagogical University.

2. MODELS OF IMPLEMENTATION OF E- LEARNING

Today there are different models of implementation of e-learning in higher educational establishments. The most successful model in the organizational strategy of electronic studies and infrastructure in a higher educational establishment, in our opinion, is the Hexagonal Model of B. Khan. (Khan, Badii 2012) The E-Learning Frame Work includes: institutional, pedagogical, technological, interface design, evaluation, management, resource support, ethical dimensions.

It should be mentioned that in the process of implementation of electronic studies in a higher education establishment it is important to define the models of its development. As it is known, the traditional model of education is based on mastering a considerable volume of knowledge, transmission of this knowledge from the teacher to the student. According to this model, the students are suggested to mastering a large quantity of already received knowledge. However, searching for educational material independently and developing projects which demand joint educational collaboration with other students of the university is practically absent.

The modern model of studies is provisionally named „American" and it is based on a constructivism theory. This model is pragmatic, personality-orientated, flexibly reacts to the real requests of a society. A teacher performs the functions of a trainer, a leader of a group of students, but not of a basic transmitter of information. Students develop skills of research, independent activity, skills of the critical thinking, and skills of communication and collaboration.

Thus, it is possible to make a conclusion, that the formation of students' skills of independent and collective work, the realization of a principle „education through the whole life" – these are only a few tasks that the system of education faces nowadays, and for the fulfillment of which the information and communications technology can be used, in particular the distance education technologies.

In e-learning the following models of studies are distinguished (Polat, Buharkina, Moiseeva 2004):

– a teacher oriented model;

– a student oriented model;

– a model oriented on the creation of educational groups.

A teacher oriented model. A traditional model of studies by means of lectures, that is named **a teacher oriented model**, is used mostly, when the aim of studies is a simple knowledge transmission. In the terms of learning, the goal means the data receiving and memorizing, but not their interpretation and change. In the terms of teaching, the teacher oriented approach envisages a control above the process of presentation of educational material together with the simultaneous transmission of knowledge to the student.

A student oriented model. The gist of the student oriented model implies that every student must not just get a certain educational material, but interpret it for creation of new knowledge. Thus, thinking is regarded to be not only an instrument for the recreation of actual knowledge, but also a mechanism for the internal mastering of knowledge through a supervision and experience. According to such approach students study by the method of attempts and errors and can simultaneously control their own learning process.

A model oriented on the creation of educational groups. A model that is based on application of educational groups, creates an environment in which new knowledge appears and is spread as a result of the collective work of students in educational groups. A teaching approach, based on application of educational groups, is the most effective while solving the practically-oriented tasks and in conducting research. The process of learning is aimed at creating new knowledge on the basis of already existing and at creative application of this knowledge for the accomplishment of new tasks.

3. INCREASED TEACHER SUPPORT SYSTEMS TO STRENGTHEN THE E-LEARNING FOUNDATION

While planning a course „Technology of distance on-line education" for the teachers of university in co-authorship with the associate professor of the Department of Informatics and its teaching methodology, a head of the Center of distance education and the newest educational technologies of the V. Hnatiuk TNPU, Habrusiev Y., the integrated model of electronic education, oriented on the student and on teaching with application of educational groups, was selected. It should be noted that using such a model of electronic education gives the following opportunities to the students:

– to operatively get necessary and systematized educational material for the effective study of a discipline;

– to participate personally in creation of the open educational content;

- to operatively estimate the gained knowledge, both independently and under the teacher's control;

- to see the analytical teacher's work with the electronic magazine of estimations;

- to organize virtual associations with the aim of exchange of knowledge and experience, discussion of courses, receiving of advice and consultations;

- to create cloud electronic portfolio;

- to operatively intermingle with teachers on the basis of modern communications.

With the aim of the use of the distance education course as the mean of forming the teacher's competences in electronic education the department of informatics and methodology of its teaching jointly with the Center of distance education and the newest educational technologies of the Ternopil national pedagogical university conducted the distance courses of in-house training for 450 teachers.

The aims of the created course "Technology of distance on-line education" – to form the knowledge about:

- the conception of the distance learning, role of information and communication technologies (ICT) in this form of studies;

- achievement of the primary objectives of the process of electronic education and the corresponding organizational, technological and didactics contexts;

- general principles of development of educational courses with the use of technology of distance education;

- didactic principles of studies with taking into account the influence of ICT;

- politics in industry of electronic and distance education on the institutional and national levels.

A course is intended for:

- specialists engaged in preparation of teaching staff within the framework of the system of retraining or in-plant training; also managers and consultants in industry of distance and electronic education;

- specialists of different educational establishments, such as institutes of in-plant training;

- specialists from a number of the faculty advisors of higher education establishments, teachers of education institutions that study without leaving their work individually or as a member of virtual groups.

The creation of the course „Technology of distance on-line education" according to the theory of pedagogical design took a few phases:

- − analysis (requirements in studies are analyzed) and formulation of desirable results;

- − design (the plans aimed at the achievement of the pre-arranged results are developed);

- − development (plans are turned into educational materials);

- − realization (educational materials are used by listeners);

- − evaluation of efficiency (educational materials are approved and corrected).

It should be noted that planning of the pedagogical design of a particular course was aimed at making its listeners the center of the whole educational process. For example, it was necessary to think not just of the context of the material, but also about what a listener must do in order to master an educational course.

In the process of development of the „Technology of distance on-line education" course the following principles of pedagogical design were used:

- − adaptation of learning methods „face to face" to the terms of on-line education;

- − development of a modular construction that gives an opportunity to the listeners easily to move from one educational module to another;

- − methods and techniques of presenting the content and types of activity that provide maximal interactiveness of the learning process.

On the basis of the conducted analysis of the competencies of modern specialist, e-learning course was divided into seven modules:

1. Organization of distance education in educational establishment. The work with the educational course „Technology of distance on-line education".

2. The system of management of educational resources MOODLE (independent work).

3. Organization of educational activity in the process of electronic (distance) learning.

4. Cloud services by Google Apps For Education for providing the educational process.

5. The use of information and communications services of GOOGLE APPS in the educational process.

6. Introduction of distance learning in the educational process.

7. Project work. The presentation of a professional portfolio of a distance learning course developer.

From our own experience of conducting distance courses, we believe that an electronic course must contain the following components:

1. The content of a course – that is, lectures, presentations, instructions for listeners, information sources, glossaries on the theme of a course.

2. The estimating component – different types of tasks both for current (a map of knowledge, infographics, essay, article, test, etc.) and final control (project work and presentation of a professional portfolio of a distance learning course developer).

3. The organizational component – educational process documentation, current announcements concerning a course.

4. Means of communication – facilities for both individual and group studies (forum, e-mail, chat, videoconferences, on-line consultations, social networks, etc).

5. Summing up – questionnaire at the beginning and upon completion of a course, reflection/feedback after the study of its modules.

The first and the second components – the pre-course methical work, the third and the fourth – the pedagogical activity during the course, the fifth – fixing the results. When preparing the course the methical content of the distance course modules was developed for every stage; also the peculiarities of the use of pedagogical technologies of distance education were taken into account. Every module contains both the compulsory and additional materials. The structure of the module includes aims and tasks, a video-lecture (both on-line translations and in a record), a presentation, tasks, text and video-instructions to tasks implementation, a list of basic and additional sources, a glossary of terms and definitions.

In the process of studies it was emphasized that the activity of a teacher of distance education organizationally can be divided into two stages:

- development of the distance course;

- realization and conduct of the distance course.

To support the modern forms of studies with the use of LMS Moodle the special tasks were created; doing them the listeners had the opportunity to acquire a competence of a specialist in industry of electronic education. With such an approach a teacher acquires a new status. The main task – to organize an independent cognitive activity of a course listener; teach him or her independently to obtain the knowledge and to apply the gained knowledge in practice.

To accomplish the above-mentioned task such methods and technologies of studies were selected, that not only and not so much allow to master the ready made knowledge, but also to obtain the knowledge independently of different sources, to form their own point of view, to be able to prove it, to use the already gained knowledge as a method for receiving new knowledge. Upon completion of the distance course „Technology of distance on-line education", a survey was conducted

concerning the most appropriate technologies of e-learning, which the teachers plan to use in their electronic educational courses.
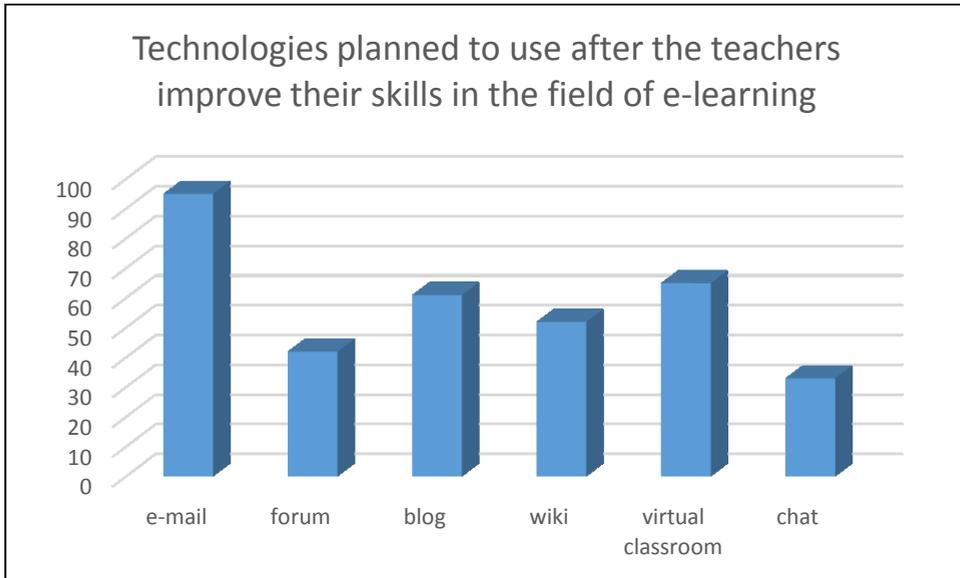

Figure. 3. Technologies that are planned to be used by teachers after the improvement of their skills in a field of e-learning.

Source: Own work

CONCLUSION

It is expedient to mark that after completing the distance course a majority of teachers of pedagogical university overcame psychological and technical barriers towards introduction of electronic education in their professional activity, increased their level of knowledge in the a field of e-learning. In particular, all teachers completed the distance education course well, improved the earlier created electronic courses on the LMS Moodle platform. Especially they marked such advantages of e-learning as the operative access to the educational resources and their exchange; the productive joint work of participants of educational process on the basis of cloud technologies of Google Apps (Google Documents, Google+, Google Hangouts) and Web 2.0 technologies. Our experience showed that electronic education is a prospective type of education in a pedagogical university that orients teachers towards the implementation of innovative methods and technologies, such as on-line lectures, on-line consultations, video- conferences, webinars, etc.

The prospects of further research include the improvement of introduction model of electronic education by means of integration of project technologies and competence approach.

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