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IMPLEMENTATION OF E-LEARNING: NEEDS
AND POSSIBILITIES (BASED ON THE RESULTS
OF SOCIOLOGICAL SURVEY)

The article analyzes students' replies to a poll on topical issues of introduction of electronic education. The poll represents an instrument of research into aspects of e-learning within European project IRNet — "International Research Network for study and development of new tools and methods for advanced pedagogical science in the field of ICT instruments, e-learning and intercultural competences". In particular, the article looks into information competence, the commitment and the willingness of students to study in e-learning system are defined. It is proved that the use

of elements of e-learning is a topical alternative teaching method and the essential support to traditional education. The article presents general requirements for distance learning systems and organizational actions that must precede the process of their implementation.

Key words: *e-learning, e-learning content, distance courses, university website, educational resources, questionnaire.*

Introduction

Modern realities of Ukrainian society require from qualified professionals in any industry the ability to use computers for educational and industrial purposes, knowledge of new information technologies, telecommunications etc. This, in turn, puts forward the necessity of professional training in higher educational institutions for the formation of competence of future professionals to live and work in the information society [1].

Given the intensive development of information technology the universities around the world have started to implement in educational practice the technologies that are creating the most favourable conditions for development and, most importantly, for self-development of students, as a result of which they will be prepared for broad professional activity. One such technology is electronic or distance learning, which involves the use of computer hardware and information, electronic technologies in the educational process. The basis of educational process in e-learning is purposeful and control intensive self-study of students who can study in a comfortable place, on an individual schedule, getting the complete set of special means of training and the coordinated opportunity of contact with teacher by phone, email and regular mail, and also in presence [4].

Despite worldwide interest of educational institutions in the creation, implementation and effective use of e-learning this issue in Ukraine only recently began to gain attention. According to some studies, in Ukraine about 30 % of educational institutions claim to already have or to be planning to organize training in distance mode [2]. Though normative legal acts of Ukraine and specific educational activities in modern conditions point to the need of the use of electronic educational resources in the educational process together with the printed ones or instead of them [5].

But quite often present forms of e-learning often imply well-known extramural training in Ukraine. It should be understood that distance education, above all, is an open system that provides for active communication between teachers and students through modern technology and multimedia. This form of education provides the freedom to choose the place, time and pace of learning.

Despite advantages of distance learning it has important drawbacks just like any mode of training. The first drawback is complicated to identify the concept “remote students” as with present stage of technologies it is quite difficult to check who passes the exam. The second, a very significant problem is low capacity of electronic network during training or examination teleconferencing. This is especially painful for the students from remote settlements of Ukraine, for whom distance education is the most suitable mode through geographical remoteness from centres of research. Among the important deficiencies of distance learning that is typical for Ukraine, we should highlight insufficient direct personal contact between teacher and remote students through extreme professional domestic workload of teachers.

In other words, we note a significant backlog of Ukraine from foreign countries in terms of distance learning due to objective and subjective reasons that hinder the development of education, slow rate of entry into the world educational space as an equal partner. Ukraine does not have appropriate programs on national and regional levels. We witness low level of computerization of society and the education system in particular, insufficient familiarity of educational establishments with network information technologies, immaturity of national educational space in the Web-environment and otherwise do not allow to realize significant potential of distance learning.

Statement of the problem

In view of the above said, in this article the authors put a goal to reveal the prospects and challenges for the creation, implementation and operation of e-learning in Dniprodzerzhinsk State Technical University based on the opinion of students. The authors see the result of this work in determining the overall direction of development and implementation of e-learning in higher education. This will take into account the views and preferences of students, their wishes and concerns, their general mood and attitude to acquiring knowledge through information technology.

The object of our study is Dniprodzerzhinsk State Technical University, which is at a rate of 167 among 300 universities of III-IV level of accreditation in the consolidated ranking of higher education institutions of Ukraine. Its characteristics present it as an average university of Ukraine, allowing to speculate about the possibility of extrapolating the results of our research on a wide range of universities in Ukraine. The respondents were students of full-time and part-time mode. The survey involved 184 students. It was conducted anonymously in May 2014 by a computer survey, which involved separate students' responses to the questionnaire, developed by the project team [6].

The results

The data obtained during research indicate that most DSTU students (58 %) quite rarely refer to information presented on the university website and get important information from other sources. It is also worth noting that there's a rather high percentage of persons who learn a lot of new, interesting and important information from the university website (42 %). Of course, the data once again reminded of the need to constantly update information on the site and search for interesting materials that are required by the students as study materials and as links to potential employers.

About 30 % of students would like to see teaching materials and literature on the University website, 15 % — information about events and activities that will be conducted at the university, 12 % — schedule, sessions and consultations. In this context, we would like to note that DSTU already has information portal where teachers can spread electronic version of teaching materials for courses, and students can use them in their independent work and prepare for classes. Quite interesting answers were obtained from the students to the question which pages of the website contained the most important information. It was found that the highest percentage of DSTU students noted the necessity and usefulness of presenting distance learning resources and additional educational resources on the University website (37 %). The high level of students' awareness with the University events is proved by the fact that almost 92 % of students surveyed at the University browse university pages on social networks, 6 % — comment on them and 2 % — add their content (photos, video, etc.).

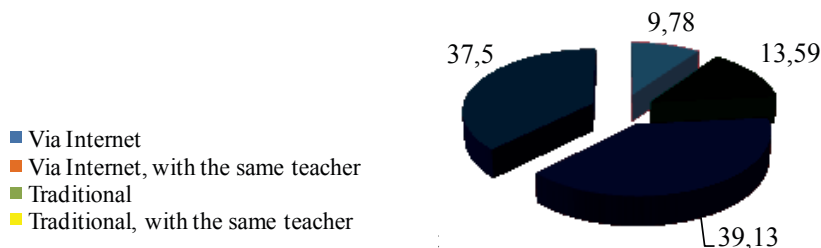


Fig. 1. The division of students according to their preferences of classes

The respondents replied which types of classes they prefer. It was found that most DSTU students — namely almost 77 % prefer traditional classes (*Figure 1*).

The main motivation for the choice of traditional classes is personal contact with the teacher, and in the classroom through the Internet — the convenience and economy of time.

The results showed that 93 % of surveyed students have access to the Internet, while 78 % use it every day, 16 % — all the time (during the day), 4 % — every week and 2 % — every month. The data suggest that 48 % of students have the opportunity to use the computer labs, software and Internet at the university after school, 36 % — do not have such needs and only 16 % of respondents said that they do not have access at all.

The answers regarding the objectives of using the web are stated in *Figure 2*, which shows that the most popular goal is to search for materials for classes and deepening knowledge (27 %). As for the use of the Internet to participate in distance courses we found only 3 % of answers. This low percentage of learners who use remote access to educational resources again confirms the relevance of e-education in Ukraine.

To prepare for classes, students often use public (free) Internet resources — 25.82 %; educational portals web — 18.36 %; contributions received from teacher — 16.91 % and electronic resources of the University Library (15,09 %).

The data indicate the fact that the popularity of using the Internet not only as an entertainment tool, but also as a means to enhance their

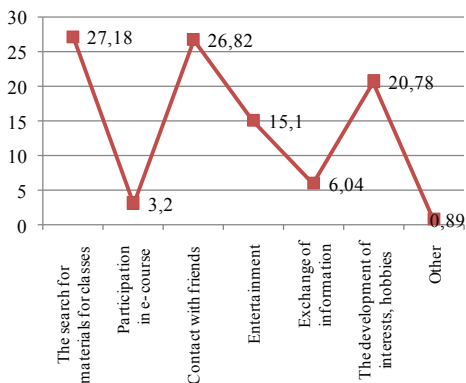


Fig. 2. The percentage of students according to their motivation for the Internet use (in %)

intellectual and educational level increases. In comparison, traditional university library resources are not used at the level as it was at least 5–10 years ago.

E-resources that students prefer to use as a source of educational materials are as follows (Figure 3). When searching for online learning materials, students often use search engines (35.74 %) and Wikipedia (27.07 %); sometimes use proven reliable portals (9.71 %), links to other Web sites mentioned on pages (8.06 %), social networking (7.85 %) and electronic catalogs (citations and databases) (7, 64 %); they rarely use blogs (3.1 %). Despite such significant popularity of search engines

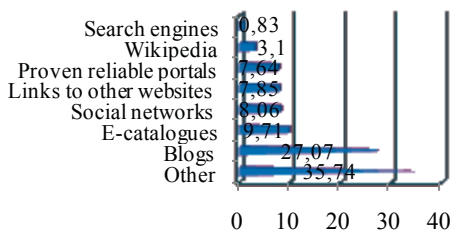


Fig. 3. The use of the Internet resources in the search of educational materials

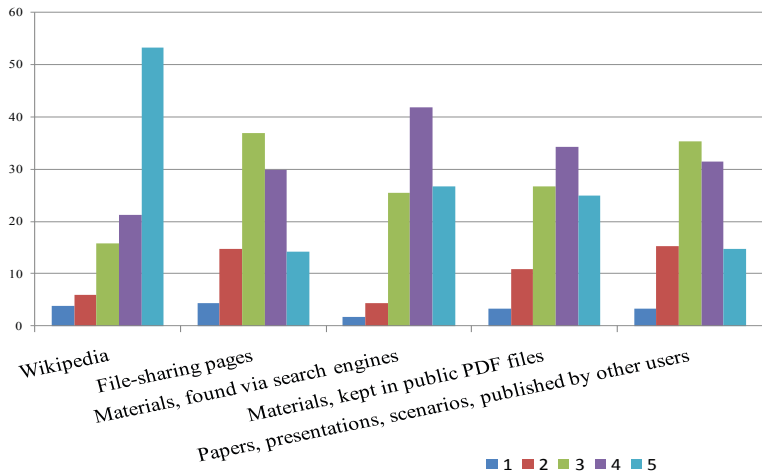


Fig. 4. The assessment of cognitive and potential and meaningfulness of materials published online (in %)

the average quality of their information received from them did not exceed 4 within the five-point system, and only 32 % of students rated the quality of information from search engines the highest score.

Moreover, we also analyzed cognitive and potential and meaningfulness of materials published online (Figure 4). In this question of our survey respondents had to rate the presented e-resources according to 5-grade ranking system. So, each of the resources has five columns, representing 5 marks, ranging from 1 till 5.

It must be mentioned that Wikipedia is considered to be the most trustworthy source owing to cognitive and semantic value of its materials, it gained the maximum of 5 points within the 5-grade rating system from the overwhelming majority of respondents — 53 % (Figure 4). 4 points were given by the respondents to the materials found on search engines (42 %) and materials contained in public PDF files (34 %), 3 points were given to file-sharing sites (40 %) and papers, multimedia presentations, scenarios published by other users (34 %).

Regarding the perception and attitude of students to gaining knowledge within the e-learning system we should emphasize the following. At present DSTU does not use distance or e-learning platforms, but most of the students

gave clearly approving answers to the question of whether Web-technologies are useful instruments for achieving educational goals and accessing training materials on specific subjects (54 %). Among them, 27 % of students believe that classes in distance mode should take up to 30 % of all classes and 21 % said they need more of these sessions — from 30 % to 60 %.

General requirements for e-learning system can be determined by profound analysis of respondents' answers to the question which type of distance course is the most effective. The survey revealed that the best course is a course in which students can find not only educational materials but also control tests (35.76 %). Along with this, a large number of positive opinions were expressed about the courses supporting all phases of study (31.25 %). The data let us predict that with the introduction of e-learning elements in DSTU the least popular will be the courses that constitute a database of educational materials (21.88 %) and forum courses (11.11 %).

An important step in our survey was to uncover students' opinions of the mode and aspects of their contacts with teachers. In particular, we found that currently students contact with their teachers outside of school hours personally — 31.31 %, via email — 29.63 %, via phone — 22.56 %, through social networks — 15.15 % and through distance learning platform only 1.35 %.

However, effective ways of handing in test papers were found, also we compared them with those currently used (*Table 1*).

From the results we conclude that:

- 30,89 % of students believe that it is effective to send tests via e-mail, but in practice only 22,22 % of the students use it;
- 10,38 % of students say that portable (external) means of storing information are effective and in practice they are used by almost the same number of respondents — 11.67 %;
- 3,29 % students responded that data transmission via distance learning platforms are effective, and in practice as little as 2.78 % of students use it;
- 5,06 % believe that cloud services are effective for paper handing in, but in practice they are used by only 3.06 %;
- 9,11 % emphasize that it is efficient to forward test papers through social networks, but in practice only 5.56 % of students do so;
- 28,61 % stressed the effectiveness of traditional paper form, but in reality they are used by far more students — 37.5 %;

Table 1

**Comparison of the most effective ways to hand in test papers
with currently used ones**

Answer	The most effective, in %	The most widely used, in %
E-mail	30,89	22,22
Portable (external) means of storing information	10,38	11,67
Via distance learning platform	3,29	2,78
Cloud services	5,06	3,06
Social networks	9,11	5,56
Traditional paper tests	28,61	37,50
Oral answers during classes	12,66	17,22

– 12,66 % preferred oral performances during classes, with more students doing so in practice (17.22 %).

Students were also asked the question which mode of learning they prefer: personalized, traditional authoritarian work, authoritarian remote or group remote mode. The answers to this question revealed that despite the willingness to participate in distance learning courses and find resources for this, most DSTU students prefer traditional authoritarian work, traditional authoritarian work was chosen as preferable by almost 55 %, personalized — almost 26 %, group work — almost 15 % and distance authoritarian mode — only about 5 %.

Conclusions

According to the study the overall conclusion is that students generally expressed positive comments about implementing e-learning in traditional educational system. Generally, the findings confirm the need to intensify reforms in the Ukrainian education system aimed at

developing distance learning, thus accelerate the integration of Ukraine into the international educational and scientific environment.

It was established that today students do not have sufficient knowledge about the advantages and positive aspects of e-learning and are accustomed to traditional forms, which they prefer. Therefore, there is a need to widen both students' and teachers' awareness of benefits of e-learning, which are: low cost, the absence of geographical and time constraints, extensive use of multimedia and information and communication technology, academic mobility, a wide range of controls and ease of updating content of training materials.

Based on these needs, opportunities, problems and prospects, the discussion why and how to implement e-learning, has to go in three dimensions. Each of these dimensions, in turn, consists of three components:

1. *stages of development* (agreement, setting objectives, implementation);
2. *arguments and criteria for decision* (economic, quality, efficiency);
3. *main categories of participants* (administration, teachers, students).

Each combination of components has to be analyzed in the form of definite steps on implementation and use of e-learning (the development component) according to the benefits (component argument) received by each category of participants (component of participants).

It could be quite promising, according to the authors, to research into the specific stages of implementation of e-learning, the formation of information and cultural competence of students in the framework of informatization of educational process.

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