



**THE CHALLENGES FACING THE HIGHER EDUCATION WITH  
THE IMPLEMENTATION OF MODERN INFORMATION AND  
COMMUNICATION TECHNOLOGIES**

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In the modern global world the new models of development of the systems for higher education are based on the rush development of the information and communication technologies. The teaching methods change rapidly. The preparation of highly qualified modern specialists demands the combination between the traditional teaching forms with the modern methods of electronic education.

*The distance education* is a process of giving interactive information and opportunities for studying at place and in time and form, convenient to the student. The educational plan at this type of education is orientated mostly to the self-dependent preparation of the students. This presupposes time and space distance between the lecturer and the student. At the same time lecturer and student have the opportunity to communicate through the telecommunications. The distance education gives an educational opportunity to students, situated at regions with no preconditions for building Higher schools. The dynamics of the modern life allows people who wish to gain an educational graduation of professional qualification, using the means of distance education, to achieve this without changing radically their professional realization.

In Bulgaria the distance education was legalized in June 2004. Many high schools work on preparing systems for this kind of education but yet there are few specialties that have a thoroughly developed system and educational means for this kind of education. Three are the leading integrated factors that determine the distance education:

1. Technological – determined by the information and communication technologies, used for development and support of the educational disciplines and the educational process as a whole;
2. Pedagogical – determined by the methods, used in the process of education;

3. Organization-methodical – determines the specific of the organization structure of the High school, providing distance education.

“The perfect model” of the distance education includes integrated school environment with a variation in the meaning of the different factors – technological, pedagogical, and organization-methodical.

The now-a-date used technologies for distance education could be divided into three main categories:

- Non-interactive (printed materials, audio- and video means);
- Means for computer education (electronic books, computer testing and control of the knowledge, new multimedia means);
- Videoconferences – implementation of the telecommunication means through audio and video channels and computer networks.

The telecommunication means and the global Internet network are vastly implied in the distance education. All this allows the interactive access to distant data bases, information systems and libraries.

An important technological factor for the distance universities is the aggregation of the implied pedagogical methods in the educational process. By choosing the communication method between the lecturer and the student as a criteria these methods could be classified as it follows:

1. Student interaction with the educational resources with limited communication with the lecturer and the other students (self-preparation). Typical for this method is the multimedia approach, characterized through the specific educational resources: printed materials, audio- and video materials and other particularly important to the virtual universities materials, supplied through the computer networks.

- Interactive data bases;
- Electronic magazines;
- Electronic books.

Wide data ranges systemized in the interactive databases could be accessed through the means of the modern communications. Local data networks for the use of students and lecturers can be supported through implying these resources. Access to external databases could also be secured.

2. Individual educational methods characterized through the communication student - student, student - teacher, student – teacher - student. In the distance education these methods are revealed mainly through the communication technologies such as telephone, voicemail, electronic mail. The development of the individual education (the system of the “tutor”) through the implementation of the computer networks is a basic element in the educational process in the virtual universities.

3. Methods, based on the leadership of the lecturer, where the students have no active role in the communication (education “one with many”). These methods, typical for the traditional educational systems, are vastly implemented with the development of the information and communication technologies. The lectures on audio- and videotapes or lectures through

video channels complement the educational process through the so-called “e-lectures”. The technology of the electronic blackboard is the basis of organizing electronic symposiums.

4. Methods with active interaction of all participants in the educational process (education “many with many”). The role of these methods in the intensity of their implementation is vastly growing with the development of the educational telecommunication technologies. The active interaction not only between lecturers and students but also between students themselves is an important source of knowledge. The development of these methods is connected to mass educational discussions and conferences. Leading role in the educational process of the virtual universities play the computer conferences where all participant share opinions in synchronized or no synchronized regime.

The basic organizational structures in the university distance education include:

- The branches for by proxy education in the traditional universities;
- University consortiums;
- Free universities;
- Virtual universities.

In December 1999 The European commission starts the initiative “e-Europe”. The basic purpose of the plan “e-Europe” is the “Investment in people and abilities”. The purpose of the electronic education of the European commission, which is a part of “e-Europe”, is also building a society of knowledge. We are now facing two important phenomena – the electronic education and the electronic trade. The growth in the range of the electronic trade for the past five years is over 100%. One of the basic factors connected with the demand is the need of flexible education and its effective implementation.

As an objective evaluation of the development degree of the information and communication technologies in some countries in implied the index “e-Europe”. This index is a summarized criterion, based on some indicators of the different aspects in the development of the information and communication technologies. According to a survey in 28 European countries in 2003 the leader in the cassation in the above-mentioned criteria is Denmark with 5.90 points and Bulgaria is taking the last place with only 1.82 points.

In order to catch up with the European development in the area of telecommunications in 2004 in Bulgaria was founded the program “e-Bulgaria”. In its framework five different projects are developed:

- ESi-Center – a project for building a European software institute regional center, with the support of which Bulgaria is supposed to become the sixth world center, excluding USA, for transfer of higher technologies in the software range;
- “i-Center” – a project for building a network of telecommunication centers throughout the whole territory of the country;
- “i-Class” – a project for computerization of the Bulgarian schools;
- “i-University” – a project for building computer halls and sites for electronic education in the national universities;

- “i-Net” – a project for building a high-speed information highway between the universities and science institutes, as well as connection to the European science networks.



For the specific of the Bulgarian education the leading role are playing the projects i-Class, i-University and i-Net, which have also been a priority both to the former and the present governments.

The Higher school of transport is following steadily the initiative “e-Europe”, being already proud of its well-built infrastructure of information and telecommunication technologies, its platform for electronic education and the presence of dozens of web-based courses. The project for building an environment for video education is also at a developed state.

Today the electronic education only supports the traditional education but in the near future they are supposed to change places. It is a well-known fact that the electronic education shall keep on developing and looking of new forms of implementation. Such a form is for example the mobile education (m-Learning) which is the next stage of development of the electronic education.

In a conclusion we could summarize that within the modern processes of globalization and vast development of the Internet only those universities shall count on higher image, which shall take part into the construction of the virtual educational environment.

## ЛИТЕРАТУРА

- [1] Kuzov O., A. Smrikarov, Виртуалното образователно пространство в България – състояние и перспективи,  
 [2] [http://europa.eu.int/information\\_society/eeurope/2005/index\\_en.htm](http://europa.eu.int/information_society/eeurope/2005/index_en.htm),  
 [3] <http://e-learning.vtu.bg>.