



WEB BASED DISTANCE LEARNING AT FACULTY OF MEDICINE OF SARAJEVO UNIVERSITY

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ABSTRACT

The time in which we live is defined by the significant influence of the information technologies on our lives, changes and development of society and the efficacy of all the organization systems. Increase and development of distance learning (DL) technologies over the past decade has exposed the potential and the efficiency of new technologies. Number of events has organized by teaching staff from Cathedra for Medical Informatics in order to promote distance learning and web based education are very extensive: Professional-scientific events, workshops and congresses, first tele-exam at the Medical faculty, Introducing of Distance learning in curriculum at biomedical faculties, etc. At the University in Sarajevo in year 2003 was opened the e-learning center for the support to the faculties the distance studies by use of the information technology. At Medical faculty of University of Sarajevo at Cathedra for Medical informatics since 2002 is in progress realization of the project named: "Possibilities of introducing distance learning in medical curriculum", approved by the Federal and the Cantonal ministry of science and education. Pilot project was realized during three past school years, theoretical and practical education of subject Medical informatics are adapted to the new concepts of education using world trends of education from the distance. One group of students was included in the project finalized by electronic exam registration and electronic exam on 20 June 2005, publicly, in the Physiology amphitheatre of the Medical faculty in Sarajevo.

KEY WORDS: distance learning, web based education, curriculum

INTRODUCTION

Distance learning is conventionally defined as: any educational or learning process or system in which the teacher and instructor are separated geographically or in time from his or her students; or in which students are separated from other students or educational resources (1,2,3). The most important factor which influences the changes occurring in education has been the installation and development of the Internet and electronic multimedia techniques. Contemporary Tele-education or distance learning is affected through the implementation of computer and electronics technology to connect teacher and student in either real or delayed time or on an as-needed basis. Delivery of the content may be achieved through a variety of technologies, including satellites, computers, cable television, interactive video, electronic transmissions via telephone lines, and others. Distance learning does not preclude traditional learning processes; frequently it is used in conjunction with in-person classroom or professional training procedures and practices. Distance learning is used for self-education, tests, services and for the examinations in medicine, i.e. in terms of self-education and individual examination services. The possibility to work in the exercise mode will image files and questions is an attractive way for self-education (4,5,6,7). The standard format of the notation files enables to elaborate the results by commercial statistic packets in order to estimate the scale of answers and to find correlation between the obtained results. Method of a multi-criterion grading excludes unlimited mutual compensation of the criteria, differentiates the importance of particular courses and introduces the quality criteria. By using computers and teleconferencing technology and through partnerships with local communities, institutions and the private sector, an open, effective, virtual learning community is now in place. Sites are located in college and university campuses, hospitals, schools, libraries, community centers and private companies. Courses are also being delivered to private homes. For the need of e-health, telemedicine, and Tele-education there are various technologies and communication systems from standard telephone lines to the system of transmission digitalized signals with modem, optical fiber, satellite links, wireless technologies, etc. There is no doubt that Internet causes "revolution" in all above, and the latest its possibilities are distribution of virtual medical instruments and medical data in real time and possibility of use in primary health care, even for some diseases with bed prognosis. This revolution how information is stored, transmitted

and accessed has extremely important implication for the health sector, especially now when embarking on a global effort to renew the tenets of Health for All based on primary health care and disease prevention, health promotion and costumer education, in the context of service delivery guided by the equity, quality, effectiveness and efficiency (7). According to Grimson at al in Dublin, "the need to participate in continuing professional development or continuing medical education is considered to be at the very least highly desirable and more likely mandatory. The use of Information Communication Technologies (ICT) is one way by which this can be facilitated in a timely and cost-effective manner" (8,9,10,11). Increase and development of distance learning (DL) technologies over the past decade has exposed the potential and the efficiency of new technologies. Benefit and use of contemporary information technologies is the area where medical informatics got the most on understanding and importance. Definition of distance learning as "use of technologies based on health care delivered on distance" covers areas such as electronic health, tele-health (e-health), tele-matics, telemedicine, tele-education, etc. as web based education. For the need of e-health, telemedicine, tele-education, web based education and distance learning there are various technologies and communication systems from standard telephone lines to the system of transmission digitalized signals with modem, optical fiber, satellite links, wireless technologies, and web sites, etc. Web based education represents health education on distance, using IC technologies and Internet, as well as continuous education of a health system beneficiaries and use of electronic libraries, data bases or electronic data with data bases of knowledge. Number of events has in order to promote distance learning and web based education organized by teaching staff from Cathedra for Medical Informatics are very broad: Professional-scientific events, workshops and congresses, first tele-exam at Medical faculty, University of Sarajevo, Introducing of Distance learning in curriculum at biomedical faculties, etc (9,10,11).

MATERIALS AND METHODS

Method of the study is descriptive, compared education in medical informatics at five B&H medical faculties with emphasis on the distance and web based education. Accent was given on the distance learning at Medical faculty of University of Sarajevo as the only one biomedical faculty in Bosnia and Herzegovina where are students able to learn and pass exam from the distance.

RESULTS

Under the results authors described “roots” of the development of distance learning in the all five universities in B&H. The mutual for all the universities in Bosnia and Herzegovina is the connection on the Internet mostly slow of 1 Mbps and with inadequate reliability. This technical limitations and relatively high prices are the limiting factors of wider introduction of ICT and e-Education into the educational institutions. Currently estimated number of users of Internet is about 10% of population. The prices of telecommunication services are high and one from the key obstacle through connecting and using Internet in research and educational process in Bosnia and Herzegovina. In development of distance learning there are some individual initiatives, mostly on faculties/universities which results with realization of small pilot projects. Serious initiative was generated by WUS Austria (World University Service of Austria) in B&H. During 2002 and 2003 WUS Austria, through its programs, Distance learning 2002 and Distance learning 2003 year, supported the development of the educational processes at B&H universities. At the University in Tuzla by the beginning of 2003 was formed the University center for the developing of distance education – UCED, aims to give technical, organizational and didactic modern multimedia hall, equipped for the needs of videoconference and training in the field of IT; the center possesses the own computer and communication equipment. To the students through web-based platform for Tele-education Learning Cubes, offers more multimedia interactive courses. At the University in Banja Luka at the Electro-technical Faculty since 1999 works the Center for open education and education from distance, whose primary role is to promote, develop and improve learning methods based on the contemporary information technologies. The basic recourses of the center are: computer classrooms, the rooms for the staff, e-educational platform of learning cubes software for the work with libraries, and computer and communication equipment. The University Dzemal Bijedic in Mostar, Faculty of the Information technology provides the possibility of studying by the system for the distance learning since 2001/2002 school year. The student can approach to all practical works and lectures which get be found at the faculty web page. It is enabled to them also the on-line application, as well as the asynchrony communication with the teachers by e-mail and of the forum. At the University in Sarajevo in year 2003 is open the e-learning centre for the support

to the faculties the distance studies by use of the information communication technology. At Medical faculty of University of Sarajevo at Cathedra for Medical informatics since 2002 is in progress realization of the project named: “Possibilities of introducing of distance learning in medical curriculum”, approved by the Federal and the Cantonal ministry of science and education. In October 2003, University of Sarajevo began with Distance learning education, opening University Distance Learning Centre. Opening the University Distance Learning Centre, as coordination body and leader in all activities in connection to Distance learning, has provided opportunity for development and growth of this kind of lifelong education. In correlation with above project conducted by the University Tele-information Centre (UTIC) and as continuation of two-year project Possibilities of introduction of Distance learning in Medical curriculum, the Cantonal Ministry approved and supported a new project; Introduction and implementation of Distance learning in medicine. The purpose of the project is to facilitate improvement of educational process at biomedical faculties, applying contemporary educational methods, methodologies and information technologies in accordance with strategy and goals proclaimed by Bologna declaration. Pilot project was realized during three past school years, theoretical and practical education of subject Medical informatics are adapted to the new concepts of education using world trends of education from the distance. Beside UTIC’s website there are two another ones created for the students study Medical informatics and Family medicine where for the first time at the medical faculty in Sarajevo they can apply for the exam electronically and check for the educational materials as well as useful information. One group of students was included in the project finalized by electronic exam registration and electronic exam on 20 June 2005, publicly, in the Physiology amphitheatre of the Faculty of Medicine in Sarajevo.

DISCUSSION

The rise of IT as an artifact of everyday life in the modern world has brought with it the dawn of a new era, often dubbed the “Age of Information”. These technologies are changing the way we perceive the world, how we think and communicate with another. Established cultures are being transformed and new cultures are forming. New virtual environment affects the way we build our sense of who we are. Some characteristics of the Internet are:

- Large volume of users and potential users,
- Lack of physical boundaries which allows for the manipulation of time and space,
- Information can be accessed in a concurrent fashion using different media,
- Concept of redundancy.

In the virtual environment we are applying for information in a way that is expanding our senses and one must take into account that experience is occurring in the context of the virtual environment. Information without a context has no meaning. Expected outcomes of the project Introduction and Implementation of Distance learning in medicine are:

- Development and integration of informatics-computer technologies in medical education
- Creation of flexible infrastructure which will enable access to e-Learning by all students and teaching staff
- Improvement of digital literacy of academic population
- Ensure high educational standards to students and teaching staff and
- To help medical staff to develop "Life-long learning way of life".

The health sector is one of the most evident potential beneficiaries of the Internet revolution and World Wide Web resource in the present and in the future, when the tools now available and the system's reliability and efficacy as a whole will be further incremented and improved. Distance learning in medicine has impact on telemedicine and practicing medicine as well. Basic skills of the use of computers and networks must be a part of all future medical curricula. The impact of technical equipment between patient and the doctor must be understood, and the situation where the diagnosis based on live voice or picture is different from a normal doctor-patient contact. In some areas telemedicine requires unique techniques. Tele-robotical guaranties differ from what surgeons normally learn. Telemedicine, and distance learning as a prerequisite for it, is best suited for doctor-to-doctor consultation, and the first contact to a doctor should always be a face-to-face consultation.

CONCLUSION

Web based education is very useful for all kind of educational process: for under and postgraduate and continual medical education. It enables the simultaneous education to the number of students of the various profiles, the approach to all the relevant forms of data bases and data knowledge as well as the mechanism of the evaluation by the eminent institutions.

- Increase capacities of educational institutions;
- Education can be easily adapted to the needs of education on-the-job;
- Costs of educational process are smaller;
- It is possible to distribute the education uniformly, thus the new educational programs are available for fields outside of educational and economic centers;
- Enables the possibility of access to the foreign educational resources to the various institutions;
- Superior quality of the knowledge gained.

Process of introducing Bologna declaration, which started last years in European countries, enable us to promote and introduce modern educational methods of education at biomedical faculties in Bosnia and Herzegovina. Cathedra of Medical informatics and Cathedra of Family medicine at Faculty of Medicine of University of Sarajevo started to use web based education as common way of teaching of medical students. Satisfaction with this method of education within the students is good, but not yet suitable for most of medical disciplines at biomedical faculties in Bosnia and Herzegovina.

Expected outcomes of Distance learning in medicine should be:

- Development and integration of informatics-computer technologies in medical education
- Creation of flexible infrastructure which will enable access to e-Learning by all students and teaching staff
- Improvement of digital literacy of academic population
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ABBREVIATIONS

DL – Distance learning

B&H – Bosnia and Herzegovina

ICT – Information Communication technologies

IC – Information Communication

UTIC – University tele-information centre, Sarajevo

WUS Austria – World University Service of Austria

UCED – University center for the developing of distance education, Tuzla

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