Application Experience of Distance Learning in East Kazakhstan State Technical D. Serikbayev University

ALMAGUL SHAKARIMOVA, GALIMKAIR MUTANOV
Virtual Institute
East Kazakhstan State Technical D. Serikbayev University
070010, Ust-Kamenogorsk, Naberezhnaya Krasnich Orlov, 69
KAZAKHSTAN

Abstract: - This paper represents application experience of distance learning in East Kazakhstan State Technical D. Serikbayev University. Paper describes information system architecture of EKSTU educational portal, technologies used for creation of unified educational environment, tasks concerned with educational process which are solved using educational portal, and other innovative approaches to the education.

Key-Words: - distance learning, open education, information technologies, educational portal, educational process, educational projects.

In compliance with Educational Development State Program for the 2005-2010 period development of distance learning system is accepted as one of the priority directions in the educational system of the Republic of Kazakhstan [1, 2, 3]. The experience accumulated by other countries in the field of distance learning allows universities of Kazakhstan to greatly shorten the period of development and quite as much strengthen educational and technological aspects of distance learning systems application.

Popularity of distance learning in a great variety of age and occupational groups proves that adequate form of being educated in the modern information-oriented society has been found. Government support of distance learning system development shows that governments of many countries pay great attention to this aspect of information-oriented society formation.

In an effort to increase quality of education, develop and apply information technologies, put into practice principles and technologies of distance learning and widen educational activities East Kazakhstan State Technical D. Serikbayev University created a subdivision called Virtual Institute. Primary tasks of Virtual Institute are:

- organization and realization of educational process using means and methods of distance learning defined by the license for conducting educational activities and according to the specialty;
- conducting research engineering and guidance using new information technologies;
- information recourses of educational purpose development such as e-books, lectures, training aids, guidance, video-lectures;
- creation and maintenance of informational and intellectual resources bank, software and information systems, and virtual representation of university in the form of EKSTU educational portal.

EKSTU Educational Portal called “Dales of Knowledge” is a system for organizing and managing educational process which uses advantages of information technologies in science and education taking in consideration all peculiarities of technical university.

Mathematical part of this system includes expert systems for evaluation quality of educational matter [4], models for optimized usage of auditorium resources, models for forming individual educational paths, models for optimized usage of expensive it-resources [5, 6], and other models.

Advantage of this approach is that set of tasks concerned with educational process is solved in the only environment:

- access to the educational matter corresponding to the specialty (e-books, lectures, training aids, guidance, syllabus);

- organization of interactive educational process (electronic whiteboard, forum, teleconferences, e-mail);
- realization of remote and diverse progress control (questions of distinction, questions of correlation, questions of substitution);
- collection of different statistical information on educational process;
- access to the information on educational process (supplemental information, syllabus, curriculum).

Information system architecture is based on client-server technology. Microsoft SQL Server 2000 is used as data storage. Access to the information is realized using website http://www.do.ektu.kz under management of Internet Information Server 5.0 and Windows 2000 Server [7, 8]. For data validation, hierarchy correlation check inside the documents and the setting of uniform standard for their structure Extensible Markup Language is used [9, 10]. The usage of the architecture of a thin client, where all the components are placed on server, allows minimizing traffic as from the side of the client as well as from the side of server. Advantage is that client doesn't need to install specialized software; database and base of knowledge are stored on the server and not transmitted to client's computer. While logical output is conducted in a separate thread which exists during the session, client's queries are processed by other threads synchronized with the core of intellectual system.

Described pattern allows separating functions of control from functions of forming outputs. Flexibility of this pattern allows making modification in one component without amendment of other or with minimal amendment. Besides, integration of system that controls educational process becomes easier as every block of the system can be designed relatively independent observing only specifications between blocks [11, 12].

EKSTU accumulated sufficient experience that proves the effectiveness of functioning of environment based on the existing educational portal.

Organizing of distance learning as one of the educational activities of university is connected with the common process of society informatization and pursues the following goals:

- expansion of educational means;
- increasing the contingent of trainees;
- intensification of the process of informatization in education system;
- developing application of information technologies;
- efficient usage of information and technical resources;
- decreasing tuition fees.

Following distance models are used:

- **Internet-technologies** for organizing direct or mediated interaction between instructor and trainee, and to provide access to the educational matter and distance progress control.
- **CASE-technologies** in form of educational and methodic documentation allowing independent learning of educational matter and progress control.
- **Mass-media technologies** for organizing unified educational environment, distributing educational audio and video material, broadcasting studies using uplink. "Development and creation of multilevel Internet access system for schools and institutes of higher education" project is realized within this technology.

Main educational projects, which are realized using technologies of distance learning on the base of educational portal, may be conditionally divided into thee categories: college education, university education, further education.

Schools of general education from the region entered the educational environment of university. Since February 2004 new educational project is functioning. This project is oriented on school learners and called Virtual Academy. The main goal of this project is to prepare school learners of the region for the unified national testing and further university enrollment.

Alongside with Tomsk State University of control systems and radio electronics (Russia) new educational programs for the senior pupils are realized for specialty "Information technologies".

For popularization of science, increasing intellectual level of trainees, preparing trainees for science contests, providing necessary conditions for revelation of gifted children, forming motivation for achieving success "Jas Talap-KZ" project is realized.

First regional distance learning contest on common knowledge among school learners of 6-7 grades was held in February 2005. Purpose of the contest was creation of necessary conditions for revelation of talented children from the most distant parts of the region, forming motivation for achieving success and introducing children to the world information environment. Total number of

participants was 187. In February 2006 number of participants was doubled. The important note is that besides interest to the contest, skills and computer literacy of participants increased considerably [13].

In January 2005 on the university meeting on informatization decision concerning application of distance learning for external students of two faculties was taken. The chosen faculties were "Faculty of information technologies and power engineering" and "Faculty of mining". The key factor of choosing these faculties was the sufficient ability of staff and students to use information and communication technologies. Student's feedback was positive. Special interest shown students who used such technologies before and who are acquiring further education. Many of those students had a job and distance learning allowed them not to distract from the work often. In compliance with standard of Republic of Kazakhstan number 34.012-2004 "Hardware and software for distance learning. Common requirements specifications." distance learning is realized using two technologies: network and CASE. E-mail and forum were chosen as main form of instructor and student interaction.

Another Educational Portal http://ektu.openet.ru is successfully functioning in the university's educational environment. It was created in 2005 on the base of partnership with Russian State institute of open education and named "East-Kazakhstan Virtual University". This portal is a part of unified informational and educational environment of Russian State institute of open education that allows users of portal to learn and discuss problems of distance learning in representative community of virtual universities.

East-Kazakhstan Virtual University has the right to create its own virtual representatives. This means that different educational institutions can organize their distance courses on http://ektu.openet.ru portal.

At the moment East-Kazakhstan Virtual University has two representatives:

- Virtual representative of Virtual Institute EKSTU. Instructors who want to teach their disciplines distantly take courses here. Name of course is "Teaching in Internet" (author's rights belong to Russian State institute of open education, Moscow).
- Virtual representative NATEK – association of English language teachers. Teachers of English language from countryside take courses here.

Experience of application of distance learning shows high demand on this form of education as from the side of students as well as from the side of instructors. Dynamic way of life, widening of international contacts, appearance of new technologies in all fields of activity stimulate necessity of distance form of education, which allows not to be attached to a certain geographical location. New categories of people are showing up. These people need education but don't have the ability to attend classes. In such conditions development of distance learning is of current importance.

On the other hand, distance learning becomes the most convenient form of realization the concepts of open education, which supposes freedom of choice in education.

Institutes of higher education in Kazakhstan strive for creation of distance learning system which would be most suitable for Kazakhstan. Experience of EKSTU shows that application of distance learning forces to step back from the stereotypes and stimulates creative and innovative approach to the education. At the same time a lot of problems arises both of global and local nature. And if local problems can be solved relatively easy, then to solve global challenging efforts one needs coordinated activity of many state and educational institutions.

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