

**Педагогические агенты в образовательном мультимедиа для детей:
Виртуальное путешествие по курсу естествознания**

М.Н. Морозов, А.И. Танаков, Д.И. Быстров

**Pedagogical agents in educational multimedia courses for children or Virtual
journey into science**

M.N. Morozov, A.I. Tanakov, D.I. Bystrov

The paper describes a multi-agent multimedia course in science for secondary school. Three animated characters (Teacher, Boy and Girl) go on a tour to learn the basic concepts and phenomena of physics and chemistry. An authoring system NATURA and a scenario scripting language have been developed to implement the course.

Когнитивные аспекты мультимедиа в электронной поддержке обучения

А.В. СОЛОВОВ

Cognitive aspects of multimedia in computerized education

A.V. Solovov

The paper considers two types of thinking – logical and intuitive, which are supported by illustrative and cognitive functions of multimedia in computerized learning systems. The paper highlights the importance of cognitive function of multimedia for building a holistic picture about objects and processes of the subject and for developing a profession-oriented intuition. The examples of cognitive multimedia objects in the learning multimedia system KADIS are provided.

**Полимедийная база данных и тестирующий комплекс в среде WWW по
ритуальным комплексам русских Поволжья**

В.С. Ижуткин, Т.А. Золотова, Д.А. Борисова

**Polimedia database and testing complex in WWW on ritual complex of the
Russians of the Volga-Vyatka region**

V.S. Izhutkin, T.A. Zolotova, D.A. Borisova

One of the perspective directions of collaboration between philologist-dealing with traditional culture (folklore) and specialist in new information technology is creating polimedia database and educational programs on regional ritual complexes. The urgency of the subject is defined by the ability of the new modern information technology for systematizing and presenting the scientific material for people dealing with the humanities at a new qualitative level: the text is accompanied by graphics, audio and video information. Complexes of the kind give a chance to get acquainted with the information of archive, as well as to creating educational programmes and providing education by correspondence.

In the report a complex of calendar and wedding rites is presented. A polimedia database on calendar and wedding rite of the Russians of the Volga-Vyatka region is used (<http://fmf.marsu.ru>), it includes ethnographical description of the main ritual actions, the works of folk art (text of song, etc) typical of these actions, photo, audio, video information.

The project is also aimed at checking one's knowledge in the field of calendar and wedding rites by means of a set of tests given to the user. A test consists of a number of questions. At the moment of time only one question can be seen on the screen. One can immediately leave the section of test if necessary to do to any database to learn the information needed. When the test is finished by the user, the answers are processed and the result of the test is given.

Мультимедийная версия лекционного курса “Культура США”

О.П. Таркаева, И.С. Александрова

Multimedia version of lectures on USA culture

O.P. Tarkaeva and I.S. Aleksandrova

The need to develop the multimedia program is justified by the lack of this kind of manuals at the Russian market, the expensiveness and scarcity of the illustrative materials, and the restrictions for using the materials during traditional methods of learning. The paper presents the structure of the program in details, describes the main levels of learning material representation, and the various modes of usage that give a student different degree of freedom based on his/her experience. The attention is paid to a set of exercises that facilitates the mastering of the content, illustrative and linguistic parts of the course. The multimedia course can be used as a complementary material to traditional lectures, or as self-study sessions that substitute the traditional course, or as distance learning course at the University branches and the other learning organizations.

Интерактивная обучающая среда по техническим дисциплинам

Ю.Б. Гольдштейн, Г.С. Сиговцев, О.В. Русанов

An interactive learning environment for engineering subjects

Yu.B.Goldshtein, G.S.Sigovtsev, O.V.Rusanov

Creating hypermedia systems is a fast progressing area of academic and applied research, in particular for computerized learning systems. The specific structure and contents of a learning environment for engineering subjects is defined based on the analysis of engineering activity. These concepts are implemented in an adaptive hypermedia information systems and tutoring module for solid mechanics.

Опыт применения компьютеров на лекциях

А.П. Тунаков, А.С. Хамзин

An experience of using computers for lecturing

A.P. Tunakov, A.S. Khamzin

An experience of using computerized lectures, when information from the computer is displayed on the large screen in the classroom, is described. The difficulties and peculiarities in lecturing style that are caused by this new media are discussed.

Экспертная Система Анализа Знаний «Эксперт-ТС»

А.Б. Андреев, А.В. Акимов, Ю.Е. Усачев

Expert-TS: an Expert system for knowledge analysis.

A.B. Andreev, A.V. Akimov and Yu.E. Usachev

The paper describes the system “Expert-TS” that is intended for creating expert systems. It includes a knowledge base editor and an expert system shell. The components of the system and its overall structure are described. The results of the system’s deployment are discussed.

Проблемы Компьютерного Контроля Знаний

Л.В. Зайцева, Н.О. Прокофьева

Computerized Knowledge Testing

L.V. Zaytseva and N.O. Prokofieva

The methodological and technological aspects of knowledge testing are considered. Types and forms of knowledge testing, that are used for traditional, computerized, and distance learning, are described. Ten types of questions that are offered to students during the tests and statistics about their usage in the modern computerized testing systems are described. Various methods for creating pools of test tasks are discussed. Features and algorithms for test evaluation are described.

Оценка эффективности самостоятельного обучения студентов в телекоммуникационной среде средствами непараметрической статистики

Е.Н. Зайцева

Estimate the self-study efficiency in a telecommunication environment using non-parametric statistics

E.N. Zaytseva

The paper describes an approach for estimating an efficiency of information learning environment that is intended for development a self-guided cognitive student activity for learning Japanese language. As the result of observations of learning process in computer-based and telecommunication environment the following features that might influence the efficiency of learning have been determined: the intensity of self-study using learning materials; the leading representative system of the student; the dominant type of motivation; and the level of Internet addiction. Student's knowledge of the subject (overall grade) was used as a dependent variable for estimating the above features. Beside this, the language skills that are most intensively developed in the telecommunication environment were investigated. As a research tool the non-parametric statistics – Kendall's rank correlation coefficient – has been chosen. It estimates the closeness of links among quantitative values of the above features.

Организация компьютерного тестирования в Технологическом университете

Д.И. Сагдеев, М.Г. Фомина, А.А. Хубатхузин, О.А. Лонцаков, А.В. Бурмистров,
М.А. Поливанов, В.А. Аляев, Ф.М. Гумеров

Computerized testing in the Technological University

D.I. Sagdeev, M.G. Fomina, A.A. Khubatkuzin, O.A. Lonschakov, A.V. Burmistrov, M.A.
Polivanov, V.A. Alyaev, F.M. Gumerov

Convincing arguments about advisability of development and introduction of students' computer testing are presented. The main trends in applying of advanced teaching technologies in Kazan State Technological University are considered. The choice of program system TestMaker that enables teachers to create a test with a wide variety of questions is proved. The results of teaching experiment in using of systems DL TEST MAKER and TestMaker are presented.

Тезаурус как Средство Проектирования Гибких Многоуровневых Образовательных Программ в Технологическом Университете

Л.И. Гурье

Thesaurus as a tool for design of flexible multi-level curricula at the Technological University

L.I. Gurie

The paper describes an algorithm for design of flexible multi-level curricula at a Technological University. The principal design tool is a thesaurus that contains the basic concepts in the form of learning elements and a set of the most essential relations among them. The software architecture for supporting curriculum design process is discussed.

Назначение и структура диалоговых электронных учебников

С.В. Васильева, Н.Н. Локтев, Р.Н. Животова, П.Н. Цапин

Dialog Computer Manuals: structure and areas of application

S.V. Vasileva, N.N. Loktev, R.N. Zhivotova, P.N. Tsapin

A dialog computer manual is a computer manual that uses dialogs as the means for teaching. Creating dialog computer manuals meets difficulties that arise because the problem of natural language student response recognition is not solved yet. The paper deals with a special type of dialog that is called functional dialog. This is a dialog when the student must perform actions that are dictated by the tutor. This type of dialog can be applied for skills mastering. The structure of a dialog computer manual is defined by its role in the learning process. It is worthwhile to create manuals for both classroom and individual learning. Several computer manuals have been developed and passed the approbation in some Saint-Petersburg's educational organizations.

Репрезентативные системы и психологический тип личности:

влияние на мотивацию к обучению

Н.И. Юсупова, Т.Д. Тарасова, М.В. Суханова, Х. Швеппе

Representative Systems and Individual Psychological Type: Influence on Motivation during Education

N.I. Usupova, T.D. Tarasova, M.V. Sukhanova, Kh Shveppe

One of the most important scientific problems in the area of education is the problem of cognition process description by the subject of outer world. Both outer world and the subject himself (his inner world) are the one complex dynamic system. The difficulty of solving this problem is connected with absence of well-formalized methods of description for functioning process of such system.

The aim of our research is to identify the relation of influence of individual psychological type and representative system on the level of motivation during education. This will help to solve the problem of personalization of educational process taking into account possible psychological problems.

Программный комплекс WTG Zebra в применении к поддержке открытого образования в Интернете

Т. З. Мухутдинова, Ю.Б. Макаров, Э.А. Мухутдинов

Program package WTG Zebra for supporting Internet-based open education

T.Z. Mukhutdinova, Yu.B. Makarov, and E.A. Mukhutdinov

The results of Internet-based program package development are presented. The package is intended for supporting Web sites of various levels. The associate data network technology that is built in the package is described. The application of the package for distance learning is discussed.

IFETS East-Euro три года в сфере открытого образования: итоги деятельности

И.Х. Галеев, В.Г. Иванов, М.С. Ахмадуллин, Л.М. Шарнин, В.И. Чепегин, С.А. Сосновский, О.В. Колосов, Ю.С. Спиридонова

IFETS-East-Euro's three Years in the area of open education: results of activity

I.Kh Galeev, V.G. Ivanov, M.S. Akhmadullin, L.M. Sharnin, V.I. Chepegin, S.A. Sosnovsky, O.V. Kolosov, U.S.Spiridonova

The paper has summed up triennial activity of East-European Subgroup of International Forum on Educational Technology and Society. The experience of specific educational network project realization has been summarized. The brief analysis of present situation in the area of new information education technology development and implementation for Russian Federation has been given.

Дидактический анализ проблематики электронного обучения

А.В. СОЛОВОВ

Didactical analysis of computer-based education

A.V. Solovov

The key didactical problems in development and application of computer-based educational technologies are stated, justified, and analyzed. Some psycho-pedagogical models of the above technologies are discussed.

Исследование готовности студентов к обучению с помощью компьютерных информационных технологий.

И.Н. Голицына

Research on students' readiness for learning using computer technologies

I.N. Golitsyna

The various aspects of students' readiness for learning using computer technologies are described. The results of pedagogical research show that students prefer live teachers during the learning and treat computers as auxiliary tools. The types of tutoring systems, that could be use worthwhile to achieve a particular knowledge acquisition level, levels of students' motivation, that is necessary for efficient usage of the above systems, and objects of learning process control on each knowledge acquisition level are described. The paper demonstrates that increasing level of motivation is the necessary condition for increasing the efficiency of learning using computer technologies.

Психолого - педагогические основы технологии компьютеризованного обучения

Ю.С. ИВАНОВ

Psycho-pedagogical foundations of computerized education

Yu.S. Ivanov

The structure of computerized education technology is considered. The pedagogical system in which computerized education is being realized that is a system of automatic education is described. The theoretical base and conceptual principles of a computerized education are suggested. Specific principles of the computerized education are revealed and the appearance of «the effects of a co-operative character» is predicted.

Обоснование и сущность деятельностного подхода в обучении

Г. Атанов

Rationale and essence of the activity based approach to learning

G. Atanov

The paper formulates and justifies principles that form the methodological foundation of the activity based approach to learning. The initial point is the milestone statement of the psychology that the human psychics is inseparable from his/her activity and is conditioned by the activity. Hence, learning should be considered as an activity, i.e. learning activity. The eventual objective of the learning is to form the manners of actions, and the content of learning is not a given knowledge system, but a system of actions and knowledge that supports mastering this system.

Методика преподавания численных методов оптимизации с использованием программно-методических комплексов

В.С. ИЖУТКИН, А.А. СУШЕНЦОВ

Methods of the teaching the numerical methods of optimization with use program-methodical complex

V.S. Izhutkin, A.A. Sushenzov

In this paper teaching the methods of nonlinear optimization with use the web-site is described. The Given site is based on program-methodical complex ODiS.

The represented complex includes the following main sections:

1. **METHODS of OPTIMIZATION**

The theory of construction and research of methods of solving nonlinear conditional extremum problems here is explained. Its basis is the uniform organization of computing algorithms of various methods for tasks of nonlinear optimization using "linearization" of active restrictions and "reduced" direction.

2. **TESTING**

On this page the set of the test problems is formed, responding on which, the student determines a level of the knowledge and values understanding of a subject.

3. **PROGRAMS**

In the given section the demo-version of the optimization dialogue system ODiS and various additional program units to her is laid out. The construction of methods under the uniform scheme has allowed to realize algorithms of the first and second orders of widely known groups of methods in a system.

4. **TEST BANK**

Within the framework of the program-methodical system on the basis of the comparative analysis the database with the tasks is generated.

5. **LABORATORY WORKS**

The laboratory works are intended for practical mastering of a material..

For effective operation with Web-version of the program-methodical complex ODiS we recommend the following technique: 1). learning of a theoretical material; 2). testing; 3). acquaintance to the system ODiS; 4). execution of laboratory works; 5). the profound learning of a material, acquaintance to the primary sources (paper etc.); 6). conducting of research operations.

Тренажеры для обучения разработке систем автоматизации, реализованные в WWW

Н.Н. Филатова, Н.И. Вавилова, О.Л. Ахремчик, С.А. Тулова

WWW based training systems for information systems design

N.N. Filatova, N.I. Vavilova, O.L. Ahremchik, and S.A. Tulova

The paper described the results of development models, designs, and prototypes of training systems for learning information system design and development. A set of training systems that cover the problem domain is listed. The requirements to and the structure of the ideal WWW based training system are defined. A training system design is based on two models – external and internal ones. A formal system M that consists of a set of elements, axioms and inference rules has been created for representing the problem domain knowledge. Embedding a student model into the training system allows controlling the processes of knowledge transformation and refinement.

Поддержка объяснений в eLearning Server 3000

С.В. Агапонов, Д.Л. Кречман, И.С. Никифоров, А.В. Юрков

Explanation support in eLearning Server 3000

S.V. Agaponov, D.L. Krechman, I.S. Nikiforov, A.V. Yurkov

The paper considers one of the main principles the toolkit eLearning Server 3000, which is intended for creating distance learning servers, is based on. Explanation support that is needed for obtaining knowledge is specially highlighted. The advance interactive means is necessary for supporting explanation. The general approach that is based on storing communication history, alternative actions and statements of each participant is described.

Значение вероятностно-множественного подхода в преподавании инженерных дисциплин на современном этапе развития материальных и информационных технологий

Ш.М. Чабдаров, А.Ф. Надеев, Р.Р. Файзуллин, А.Е. Егоров

Importance of probabilistic-plural approach in teaching of engineering discipline on modern stage of development material and information technologies

Sh.M. Chabdarov, A.F. Nadeev, R.R. Faizullin, A.E. Egorov

We study the problem of the particularities of shaping the stochastic thinking in process of engineering preparing the students in high school. It is shown that development of science and technology carries dialectical nature, as transition from deterministic models and methods of study to stochastic-plural approach in study of scientific discipline.

Интегрированная среда обучения по курсу «Теория и методика обучения информатике»

Т.В. Минькович

An integrated learning environment for the course “Theory and methodology for teaching informatics”

T.V. Minkovich

The paper suggests the justified structure of the methodological training package that is intended for training of students of the Pedagogical University who specialized in informatics. The focus is on the computerized part of the package, which is an integrated learning environment. Its structure corresponds to the structure of teacher’s activity and the structure of learning process. The integrated learning environment for would-be teachers contains beside information support and testing systems also some programming tools and training systems. The environment has been mostly developed in the University. Its structure could be useful for developing learning environments for would-be teachers of other subjects.

Создание учебного практикума на базе конечно-элементного пакета ANSYS

О.А. Лонцаков, Ф.М. Гумеров

Creating a practicum based on the finite element package ANSYS

O.A. Lonschakov and F.M. Gumerov

The paper considers usage of the finite element package ANSYS for conducting a practicum on heat physics for engineering students. It shows that using the practicum complements lectures and laboratory works, and helps the students to understand the subject better.

Разработка и внедрение интегрированных Интернет-сред обучения и тестирования

Е.Н. Архипова, В.В. Крюков, К.И. Шахгельдян

Development and deployment of integrated Internet-based environments for training and testing

E.N. Arkhipova, V.V. Kryukov, K.I. Shahgeldyan

The paper is devoted to development of Internet-based learning environments and their deployment into the University curriculum. At the Vladivostok State University of Economics and Service an information learning environment AVANTA (<http://avanta.vvsu.ru>) has been developed and deployed into curriculum. The interactive testing system (SITO) is in the final stage of development. The paper describes both technological and organizational aspects of information technology application in the University.

Синтез традиционных и новых подходов в обучении иностранным языкам

Н.Х. Мифтахова, Э.М. Муртазина, Ю.Н. Зиятдинова

Synthesis of traditional and new approaches in foreign language learning

N.Kh. Miftahova, E.M. Murtazina, and Yu.N. Ziyatdinova

The long-term experience of teaching languages to the Kazan State Technological University students has required the use of the most efficient educational technologies and techniques as well as constant updating of the contents and the teaching strategies for classroom activities, which resulted in the creation of the rational and flexible system. The present

educational project has been based on the synthesis of authentic profession-oriented teaching complexes, excellent teaching performance, an intensive use of computer-assisted language learning (CALL), constant progress assessment, timely updating of the whole system of teaching/learning activities, etc.

In the frameworks of the present project the students are enabled to acquire the opportunity to enrich their professional potential through double majoring: speciality plus a working knowledge of foreign languages.

Семантический анализ естественно-языковых текстов в вопросно-ответном режиме

Дж.Ш.Сулейманов, М. М. Аюпов

Semantic Analysis of the Texts within of the Question-Answer Situation

Dj.Sh. Suleimanov, M.M. Aupov

The semantic analysis of the texts within of the question-answer situation is described. In the report the basic principals of the NL-processor's development are considered. Two important methodological principals: "expecting" of the meaning of the question and "determinacy" of the context allow to implement the efficient semantic analyzer.

Нейросетевые модели в адаптивном компьютерном обучении

Ю. В. Кольцов Н.Ю. Добровольская

Neural network models in adaptive computerized learning

Yu.V. Koltsov and N.Yu. Dobrovolskaya

The optimization of the learning process in an adaptive computer system is based on exploration and taking into account the student's features and characteristics. The paper describes and formalizes features that built the core of the student model. An adaptive system assigns a particular class to the student that allows selecting specific tutoring methods and learning material representations. For solving the student classification problem the neural networks in particular the Hopfield and Hamming networks are proposed. The processes of a neuron network design, creating input matrix that contains student model parameters, and a multi-layer perceptron model for forecasting session results are described.

Автоматическая генерация задач для задач управления

Л. Солдатова, М. Сoga

Automatic task generation for control problems

L. Soldatova, M Soga

The approach for automatic generation, comparison, and classification of control tasks is discussed. A task is considered as uniform problem to transform a given state from a set of initial states into a state from a set of target states. The problems differ merely in the development of their solving processes. Any method of problem solving may be presented by a graph and each specific problem - by trace on this graph. The problems with the same traces are determined as single class. For automatic task generation (ATG) the "generate-and-test computations" method is used.

For the automation of the processes of analysis of the solution of control problems, their classification, comparison, and generation of new problems the research prototype of the tracer interpreter is developed. The pilot tasks formed by ATG are recommended by experts to train pilots of the aviation of the Pacific Navy of Russia.

Компьютерная обучающая система базирующаяся на модели массового профессионального пользователя.

В.К. Григорьев

A computerized tutoring system that is based on the mass professional user model

V.K. Grigoriev

The paper is devoted to increasing the efficiency of mass professional user of computerized control systems using authoring tools for creating computerized tutoring systems (CTS). The user model and the criterion of its efficient implementation are described. The general structure and interface of a CTS are given. The elements of CTS interface that require multimedia support are discussed from the view point of the constructivist and objectivist models of learning process. The experimental results of efficiency of training using a concrete CTS are discussed. The areas of application of the approach are described.

Информационное и методическое обеспечение изучения математики на нематематических специальностях университетов на основе модели знаний математики

А.С. Клецёв, И.М. Тарасова

Information and methodological support for learning mathematics at non-mathematical University departments that is based on the model of mathematical knowledge

A.S. Kleschev, I.M. Tarasova

Currently, the requirements to quality of students' knowledge are raised. According to the Second Generation National General Knowledge Standards, that are issued by the Russian Federation Ministry of Education, mathematics is amendatory subject for all University's specialities. The template curricula have been proposed for such subjects as mathematics and mathematics and informatics. But the question is how to teach the above subjects for science and humanitarian oriented students?

The paper proposes a model of mathematical knowledge, which can be used to select proper topics and problems for each speciality accordingly to the Second Generation National General Knowledge Standards for teaching students to solve both general and applied problems.

The paper suggests using personal computers for humanitarian students due to insufficient time in mathematical curriculum. This approach helps to improve students' skills in using personal computer to solve applied problems.

Технология повышения степени интеллектуализации при организации компьютерного образования

И.Л. Надточий, И.Л.Кафтанников

Technology for increasing of intellectual degree for computer-aided education

I.L. Nadtochy, I.L.Kaftannikov

Paper considers the problems of using of intelligent information technology for educational process organization in different kinds of education, which are realized by the department of Electronic computers of Sought-Ural State University.

Обмен информацией в дистанционном обучении при проведении виртуальных практических занятий.

А.Ю. Подгорнов

Exchange of information in distance learning during virtual hands-on sessions

A.Yu. Podgornov

The paper considers the problem of interactions among people, who participate in distance learning, and variants of its solution using Internet technology. The attention is paid to the means of information exchange in distance learning during virtual hands-on sessions. The abilities of this means that is necessary for conducting virtual hands-on sessions efficiently is described.

Интеллектуальные агенты как средство автоматизации роли преподавателя в дистанционном обучении

А.А. Щедрина

Intelligent agents as means for automating teacher's actions in distance learning

A.A. Schedrina

The paper is devoted to the problem of automating teacher's actions in distance learning system. To solve the problem the multi-agent technology in a client – server environment is proposed. The multi-agent system collects data about students' behavior (testing results, progress in learning, etc.), conducts quizzes and tests, interacts with students, and generates supporting information for a particular student based on his/her current state.

Управление в дистанционном обучении

Л.Л. Товажнянский, В.А. Кравец, В.Н. Кухаренко, Н.Г. Сиротенко

Control in distance learning

L.L. Tovazhnyanskiy, V.A. Kravets, V.N. Kukhareenko, N.G. Sirotenko

The necessity to change the paradigm of education in the modern society is shown. The new paradigm is based on the principle of dominant role of individual in the development of society.

Distance learning serves as a model of new educational paradigm. A distant course is represented as an open progressing system that in the process of its development uses all achievements of information and communication technologies, pedagogy, psychology etc. The directions, objectives and approaches that are used in the Problem Distance Learning Laboratory at the National Technical University "Kharkov Polytechnic Institute" are described. The approaches to creating learning materials and results of using distant courses for teachers retraining are discussed.

Использование онлайн-динамических моделей в е-курсах.

Ю.В. Степаненко

Using on-line dynamic models in e-courses

Yu.V. Stepanenko

The paper describes the advantages of using dynamic models that simulate processes and systems of the problem domain under consideration in e-courses. A survey of existing technologies that are able to simulate real processes and systems on the WWW is provided. The aspects of using on-line dynamic models at different stages of learning are discussed.

Проектирование компьютерных технологий дистанционного обучения профессиональным математическим дисциплинам для подготовки специалистов по прикладной математике и информатике

С.Н. Медведева

Distance learning computer technologies design for mathematical subjects for preparing professionals in applied mathematics and informatics

S.N. Medvedeva.

A methodology for didactical and program design of distance learning computerized learning systems is described. The learning systems are intended for subjects that have complex logical structure. The methodology is based on the system approach, didactical rules and determined invariant of didactics of computerized learning. As a practical application of the proposed methodology the paper describes the first version of computerized learning system for mathematical statistics, which is currently under approbation at the Department of Applied Mathematics and Informatics at the Kazan State Technological University.

Постановка задачи: исследование синхронной компьютерно-опосредованной коммуникации в образовании

И.Н. Розина

Research on synchronous computer-mediated communication in learning

I.N. Rosina

This paper presents the object statement to examine a number of synchronous computer-mediated communication (CMC) systems for interactive (online) teaching and learning. As a theoretical and practical approach CMC is based on some well-known communication theories and principles that explain a wide range of communication phenomena and develops some new one. The CMC systems provide an ideal environment for both knowledge construction and learning community building. The principles of learning-centered, cognitive and social-cultural constructivist theories provided the bases for the design of synchronous activities. Based on the results of theoretical observers' logs, rating of social presence, communication interface, qualitative and quantitative research, several desirable communication models and features of synchronous CMC systems are recommended.

К вопросу построения обучающих программ для сред дистанционного обучения

А. Овакимян, С. Саркисян

Toward creating tutoring systems for distance learning

A. Hovakimyan, S. Sarkisyan

The paper considers an approach to tutoring systems design for improving the efficiency of computerized learning. The approach is based on structuring course learning materials and adapting the course to a particular student. The methods for generating efficient learning scenarios are discussed.

**Опыт Построения и Использования Цифровых Библиотек для Поддержки
Дистанционного Обучения**

А.П. Войченко, О.В. Данилова

Experience in digital library development for distance learning support

A.P. Voychenko and O.V. Danilova

The paper is devoted to the International Research and Training Center (IRTC) experience in digital library development and use for distance learning support. The general place and role of digital library in distance learning process are described. The main features of digital library are listed and considered. The description of practical use of the Greenstone Digital Library software for digital library development in IRTC is provided. Some predictions on perspectives of digital library usage are made.