COMMUNICATION AND INFORMATION AGENCY OF UZBEKISTAN

TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES

For the Chief of
Defense Department

_____

_____ 2010 y.

Bachelor's final qualifying work

Titled: «Elaboration of the multimedia course on "The General psychology" and its integration into the educational process with using
Learning Management System (LMS) – Moodle».

Graduate _____ Akhatova R. Yu.
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Tashkent 2010

COMMUNICATION AND INFORMATION AGENCY OF UZBEKISTAN

TASHKENT UNIVERSITY OF INFORMATION TECHNOLOGIES

Faculty ___IT___ department _____ Pedagogics of technical education _____
Direction (specialization) 5140900_____
Professional education (informatics and information technologies)_____

APPROVED

Chief of chair _____

"___" _____2010 y.

ASSIGNMENT

for the Bachelor's final qualifying work

_____Akhatova   Rashida   Yunusovna_____
(surname, name, patronymic)

1. Theme of work: Elaboration of the multimedia course on "The General psychology" and its integration into the educational process with using Learning Management System (LMS) – Moodle_____

2. Approved by the order of the university from "__" _____ 2010 y. № ____
3. Date for final work _____
4. Baseline data for work Technical books_____
_____
5. The contents of a settlement and explanatory notes (the list of questions liable for working up) introduction, review chapter, basic chapter, pedagogics chapter, safety of life chapter, conclusion_____

6. The list of graphic material tables, figures_____

7. Date of delivery of the task _____

Adviser _____

(signature)

Assignment accept _____ (signature)

8. Consultants on separate sections of final qualifying work

Section	Name of consultant	Signature, date	
		Assignment given	Assignment taken
Chapter 1	Khamidov V. S.		
Chapter 2	Khamidov V. S.		
Chapter 3	Kilicheva F. B.		
Chapter 4	Abdullayeva S. M.		

9. The schedule of performance of work

№	The name of work's section	Date of performance	Signature
1.	Collection and processing of raw materials to performance the work		
2.	Compiling content		
3.	Writing the final qualifying work		
4.	Registration the final qualifying work		
5.	Preparation of the report - presentation		
6.	Provisional protection		
7.	Protection		

Graduating student _____   «___» _____ 2010 y.
           (signature)

Adviser _____   «___» _____ 2010 y.
           (signature)

Данная выпускная квалификационная работа посвящена разработке мультимедийного курса по "Общей психологии" и его интеграции в учебный процесс для организации дистанционного обучения с использованием наиболее развитой системы управления обучением - LMS на базе мощной, модульной, объектно-ориентированной, динамической, обучающей среды - Moodle.

The given final qualifying work is devoted to elaboration of the multimedia course on "The General psychology" and its integration into the educational process for distance learning using the most advanced learning management system - LMS on the basis of a powerful, modular, object-oriented, dynamic, learning environment - Moodle.

Ушбу битирув малакавий ишда LMS энг ривожланган бошқарув таълим тизимида Moodle асосида модулли, объект-йўналишли, динамик, кучли ўқитиш мухитида "Умумий психология" мультимедиа курси учун масофадан ўқитишда ўқув жарайнини интеграциясини ташкил қилиш кўриб чиқилди.

CONTENT

INTRODUCTION

In the recent trend of rapid development of educational technologies, due to intensive introduction to the learning process of computer and telecommunications networks, advanced multimedia and automation. Therefore, in the information society priority is a high degree of education of its members.

New computer technology for information exchange established the technical feasibility of mass education, broke news of the border, increased speed of information exchange and to increase it. The use of information technology - the only possible way of training, corresponding to world standards.

In addition, the development of information technology causes the formation of a new educational system, which provides unique educational services, and at the same high quality.

According to the Decree of the President of the Republic of Uzbekistan, I. A. Karimov, on the further development of computerization and introduction of information and communication technologies, and in accordance with the National Programme for Training of the Republic of Uzbekistan, it is necessary to establish national system of information and its mass introduction into all spheres of society, creating favorable conditions for entry into the world information community.

The emergence of the World Wide Web has opened the possibility of remote use of information resources and intellectual capacity of almost any institution in the world. (For example, the British Open University ", etc.)

The popularity of distance learning due to a number of reasons, principal among which are the following:

- Desire to receive education in schools, far from the place of residence;

- The possibility of learning at the manufacturing or other process;

- Minimization of material costs for education;

- Sufficiently large number of relevant software and other.

However, the constraints are:

- Undeveloped legal framework;

- Lack of quality and value of communication channels;

- Difficulty adapting to the educational process had already been made, etc.

These advantages and disadvantages of distance learning and differentiation of the education system in the modern environment and the intensive development of information

technology makes it relevant to the issue of creating a new educational environment that has found its solution in the laws and regulations of the Republic of Uzbekistan.

Great possibilities of information computer technology increases the effectiveness of training activities by expanding the range of educational services, increase motivation and cognitive activity.

The subject of research is a learning management system - Moodle, providing implementation of distance education technology.

The aim is to develop a multimedia course "The general psychology" and its integration into the learning management system Moodle. This objective involves the following tasks:

- Analysis and characterization of informational and educational environments;

- Creation of a multimedia course on the subject "The general psychology";

- Integration of the course "The general psychology" in educational process with the use of Moodle.

The novelty of the work. The basic principles of the introduction of elements of distance learning in various forms of educational process.

The topicality of the work. Used this systematic approach of introducing the elements of distance learning, which takes into account not only the growth of information flow, but the downward trend in hours devoted to the course. This current approach is open to innovative computer and information and communication technologies, preparing students in friendly interface for independent life in the information society.

Publication on final qualifying work. Of the seven published works two - [19], [20] on graduation thesis.

Final qualifying work consists of three interrelated chapters.

The first chapter examines the problem of organizing the learning process using information technology. We give an appropriate definition, and describes the properties of distance learning technologies. Formulated the concept, functions and structure of typical educational environment. We consider the idea of technological specifications of SCORM, IMS, as well as key features and differences in content management systems and learning process.

In the second chapter examined: features of electronic multimedia lecture notes, milestones and development tools, training materials, methods of developing multimedia course with the help of the program iSpring. Discusses the main advantages of Moodle and how to do distance learning.

The third chapter investigates the issues of organizing the learning process using remote technology training, as well as modern teaching technologies and methods of use of multimedia resources in the educational process, particularly in the course "The general psychology".

CHAPTER 1. ANALYSIS OF THE PROBLEM OF EDUCATIONAL PROCESS WITH THE USE OF INFORMATION TECHNOLOGY

1.1. Interactive methods and tools in the learning process

The main feature of interactive learning technologies from the traditional is the use of the computer as a new and dynamic medium of instruction, the use of which radically changed the system of forms and methods of teaching.

Application of computer technology in teaching can be based on individualized learning process, improving the visibility of presentation.

Obvious are the following possibilities of computer technology in teaching:

- Automation of training, which increases its "throughput" capacity and "reduce the price of education";

- Means of demonstrations of various processes by means of appropriate modeling programs;

- Implementation of active learning systems (e-books, fitness equipment, business simulation games, etc.);

- Access to databases and knowledge bases;

- The use of "communication" with the teacher at a distance, at a convenient time, etc.

However, studies conducted in developed countries shows that training programs and systems have not received adequate provisions, namely:

- Testing programs are not more than 50% of software products;

- Universal remote training systems and Internet universities - less than 20%;

- About 43% of the programs and systems are not designed for use in the network, although operating in the operating systems with graphics capabilities, and only 37% work in the Internet environment;

- About 50% of software work in single user mode and only 24% are multi-user networked systems;

- 49% of the programs and systems use hypertext for storage, display and retrieval of information, and only 25% of software products developed using modern computer technology (multimedia, hypermedia, etc.).

1.2. Distance Learning in Continuing Professional Education

Establishment and current status of distance learning can be traced to the data on the dynamics of educational institutions abroad [7], shown in Figure 1.1 and 1.2.
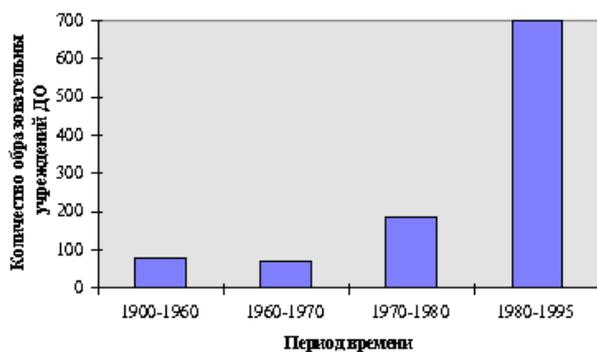
Fig. 1.1. Growth of the number of educational institutions using the DL.
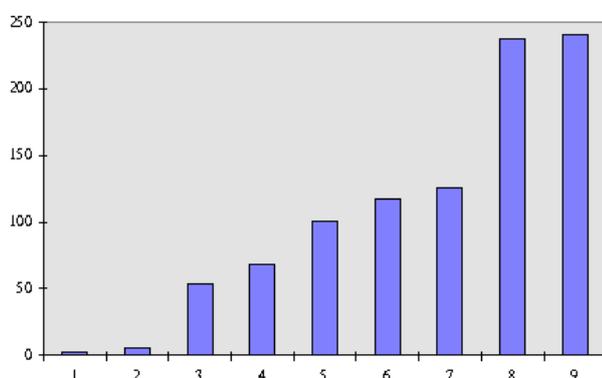
Fig. 1.2. Number of educational institutions that use the technology to, for countries where: 1 - The Middle East, 2 - Central America, 3 - Latin America, 4 - Australia, 5 - Asia, 6 - Russia 7 - Africa, 8 - Northern America, 9 - Europe.

Distance learning develops in other regions of the world. As examples of mega-universities, develop until you can bring Chinese TV universities (China), National Open University. Indira Gandhi (India), Korea National Open University (Korea), Anadolu University (Turkey).

1.3. Educational characteristics of distance learning

We know that distance education - a complex of educational services provided by means of specialized educational environment, based on the means of sharing educational information at a distance.

Educational environment distance learning a system-organized collection of data, information resources, interaction protocols, hardware and software, organizational and methodological support, aimed at meeting the educational needs of users [9]. Distance learning is

a form of continuing education, which aims to realize the human right to education and information. There are other interpretations of distance learning, for example:

Distance learning - a new organization of the educational process, based on the principle of self-study student.

Distance learning - set of information technologies to deliver the bulk of the trainees to study material, interactive communication students and teachers in the learning process, providing opportunities for students to independent work on development of training material under study, as well as an assessment of their knowledge and skills acquired during training [16].

Note interpretation of the concept prior to offering specialist association for the U.S.A, which literally translates as **"the acquisition of knowledge and skills through information and education, including all technologies and other forms of distance learning"** [12]**.**

All of the above definitions reflect different aspects of this multifaceted phenomenon. Sometimes it may give the impression that the distance learning does not use traditional information technology, print media, that during the study in general there is no contact of teacher and student.

To distance learning include the situation where parties to the educational process is not geographically removed (living in the same city, region), but may not be able to communicate due to different time conditions (hours of work and life).

Given the above set forth, consider the following more complete definition of the term distance learning.

Distance learning - a synthetic, integrated, humanistic form of education, based on the use of a broad spectrum of traditional and new information technologies and technical tools that are used for the delivery of educational material, its self-study, the organization of the dialogue exchanges between teachers and learners, and where learning is not connected with the place, time, and specifically one educational institution.

The following factors and processes leading to the necessity and possibility to use up:

- New requirements to education (access, low tuition fees, restrictions on training time, etc.);

- Limitations on the capacity of universities, faculties of education, etc.;

- Increasing the number wishing to get a prestigious education or training;

- The emergence and development of qualitatively new IT tools;

- Increased international integration.

Analysis of domestic and foreign practice of distance education allows you to mark **the special characteristics and** distance learning:

1. **Flexibility.** Students, mostly, do not attend regular classes and can learn as much as necessary for the development of the course and obtain the necessary knowledge on the chosen specialty.

2. **Modularity** - materials for the study are offered in the form of modules that allows the learner to generate the trajectory of their training in accordance with its demands and potential.

3. **Parallelism.** Education can be carried out when combining the main professional work and study, ie "On the job."

4. **Long-range.** The distance from the location of the student to an educational institution is not an obstacle to effective educational process.

5. **Asynchronously.** In the process of training trainers and trainees can implement technology education regardless of time, that ie on convenience for every schedule and at your own pace.

6. **Scope.** This feature is sometimes referred to as "mass". Number of students in the LMS is not a restrictive parameter.

7. **Cost-effectiveness** - efficiency is manifested by reducing the cost of maintaining the premises of educational institutions, resource saving time, material (printing, reproduction, etc.).

8. **Teacher.** Multifunctional role of the teacher (in the LMS-tutor), when it has spawned such functions as coordinating the cognitive process, adjustment of taught courses, counseling, leadership training projects, etc.

9. **Trainee.** To students in LMS requires exceptional motivation, self-organization, hard work and a certain starting level of education.

10. **New information technology.** The CPA is used mainly New information technology (computers, audio-video equipment, systems and telecommunications facilities, etc.).

11. **Urgency and exhaustive training** - provides transparent access to the subjects of the educational process to all existing information.

12. **Individualization of the learning process** - an opportunity of professional self-testing, course selection, teachers and the depth of exploration of the material at all stages of the learning process.

13. **Mobility** - effective implementation of the feedback between teacher and learner.

14. **Social equality** - equal opportunities for education regardless of place of residence, health status, elitism and material security trainee.

15. **Internationality** - allowed the export and import of world achievements in the education market.

1.4. Technology of Distance Learning

In an open distance education, there are three main technologies [10]:

- **Case-technology** when teaching materials well structured and adequately staffed in special collections ("Case"). They were sent to the student for independent study with periodic consultations with tutors;

- **TV-technology** based on the use of television lectures with advice from tutors;

- **Network technology,** based on the use of the Internet, both for the students of educational materials, and for interactive communication between teachers and students.

Using TV-technology is widely used in the world (for example, the National Technological University (USA, http://www.ntu.edu), Shanghai TV universities (China, http://www.shtvu.edu.en). In Russia, in this direction the most successful advanced Modern University for the Humanities (http://www.muh.ru).

Network technology of distance learning is the canonical form of unique transport for the Internet to solve problems of training students regardless of their location.

Convenience and low cost (3-5 times lower than the present form of training), have made this technology the most popular and widespread system of distance learning, which consists of the following basic elements:

- An educational institution, as the organizational structure of distance learning;

- Information Resources - a database of training and resource materials;

- Hardware and software technologies to ensure DL;

- Teachers distance learning technologies (tutors);

- Students (students).

1.5. Information and Learning Environment

One of the funds needed for full implementation of the network technology of distance learning is an educational environment.

Under information and learning environment Remote (Open) education refers to a single information and educational space, constructed by integrating information on both traditional and electronic media, computer and telecommunications technology cooperation, which includes a virtual library, distributed databases, well-structured educational-methodical complex and advanced machinery didactics, in which the principles of the new educational technology [3].

In the context of this work will be understood as a set of information and learning environment software and hardware tools for implementation of information support distance learning using computer and telecommunication technologies.

The main tasks and functions information and learning environment

To solve the main problem - the provision of quality education - information and learning environment must solve the following subtasks:

- **Management of the system's.** Guide institution develops policies of educational activities: opening of the specialty and expertise, preparing training programs, defines a list of training requirements to training courses, building a curriculum for each program, is working with the developers of course, organize the training process in accordance the curricula.

- Formation of the course. The teacher - the developer of the course provides knowledge in the course. It should provide proper knowledge, the actual course material, and its author's teaching methods, teaching skills and techniques.

- **Training in the system.** Student studying a course in the individual mode, choosing the best way to study the degree of detail, following their own pace.

- **Supervision of training.** The teacher accompanying the course (tutor) should be able to control the process of studying the course for each student and if necessary, assist or give advice.

- **Monitoring and analysis of the learning process.** For the teacher-developer of the course and management is important to analyze the learning process as a whole at the rate on the cycle course, program, evaluate its dynamics, to identify possible problems.

The main objective of information and learning environment - providing all the basic methods of distance learning on the Internet, namely:

- Ensuring access to learning materials via the Internet;

- Dissemination (transfer) of teaching material;

- Testing;

- Accumulation in the database system of educational information resources (books, courses, tests, etc.);

- Informing users about the progress and results of the educational process;

- Organization of distance education in accordance with the curricula.

To solve these problems information and learning environment must have the following main functions:

- Providing students teaching materials;

- Creation and maintenance of an inventory of information resources;

- Testing (introductory, intermediate and outcome);

- Identification of users and their structuring into categories;

- Providing interactive communication with the trainee teachers and administrators of educational institutions;

- Providing each category of users to realize their goals;

- Providing information on the order of training for potential users;

- To establish the necessary documents for admission.

On the technical side information and learning environment must provide:

- Collection, operational update and store the necessary information in various forms;

- Release of information to users;

- Authorization of user access to information with the implementation of a multilevel system of information security;

- Administration of the system;

- Effective and rapid creation of information resources by users.

Typical structure and composition of the components of the information and learning environment

Information and learning environment shall include in its membership subsystem, designed to ensure efficient operation, as individual participants in the training process, and their joint activity, ie become an integrated information and learning environment.

Analysis of existing publications showed that the basic components of an integrated information and learning environment are:

- Teaching resources;

- Management;

- Means of workflow.

1.6. Content of learning management systems

The use of Internet technologies in the learning process implementing a content management system training (Learning Content Management System - LCMS) and learning management system (Learning Management Systems - LMS).

Both systems, LMS and LCMS, manage course content and track learning outcomes. Both tools can manage and monitor content up to the level of learning objects. But the LMS at the same time can manage and track blended learning, made up of online content, activities in classrooms, meetings in virtual classrooms, and various other sources.

In contrast to the LMS LCMS can not manage blended learning, but instead can manage content at the level of granulation lower educational facility that allows you to more easily carry out the restructuring and redirection of online content. In this regard, the development of LMS

must follow the path of integration into a single automated system for the main functions of educational institutions, including the functions of electronic Dean, various educational procedures of the training process, etc.

The main functions of LMS:

- Registration of students and teachers;

- Delivery of content;

- Providing different types of interaction between students among themselves and with teachers;

- Monitoring performance;

- Collection of statistics on educational work;

- Generation of reports, etc.
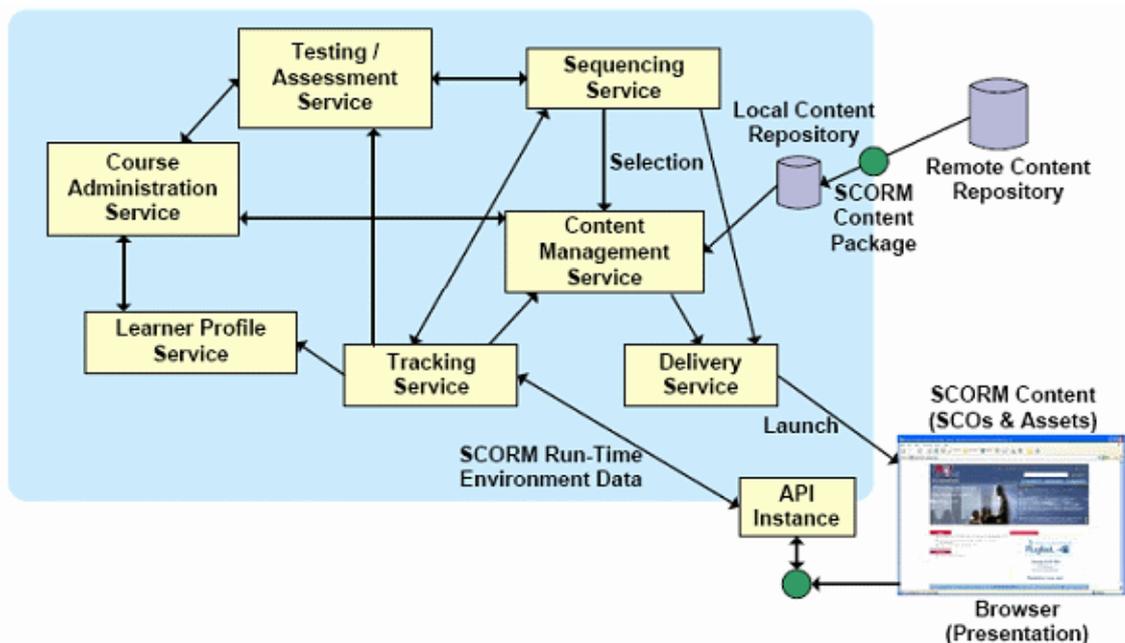
Fig.1.3. Structural model of management education.

Along with these features is important in the LMS and the provision of services to prepare and play training materials.

In connection with the development and widespread introduction of distance learning technologies developed numerous LMS: Blackboard Learning System (www.blackboard.com), Claroline (www.claroline.net), Moodle (http://moodle.org), OLAT (www.olat . org), OpenACS (http://openacs.org), Top Class (www.wbtsystems.com), TotalLMS (www.sumtotalsystems.com), WebStudy (www.webstudy.com), WebTutor (www.websoft.ru), LMS Prometheus (www.prometeus.ru), eLearning Server (www.learnware.ru).

The analysis of technology and management systems distance learning

The effectiveness of distance education depends essentially on the use of its technology. Features and characteristics of distance learning technologies to ensure the maximum possible efficiency of interaction between student and teacher within the distance learning.

In all variety of distance learning are the following groups:

• software product (Authoring Packages),

• learning management system (Learning Management Systems - LMS),

• content Management System (content of training courses) Content Management Systems-CMS),

• learning content management system (Learning Content Management Systems - LCMS).

Authoring Packages

All software products are some of the local development efforts aimed at exploring individual items or sections of courses. The teacher, using any technology (HTML, PowerPoint, TrainerSoft, Lectura), or simply creating an electronic document, develop training content. Drawback of such products is the inability to track and monitor over time the learning and performance of a large number of trainees.

They are designed to create lessons with immediate feedback to the learner, rather than to store information about the learning process for a long time. Such developments are effective for enhancing and intensifying supply of educational material in the classroom and for self-study students, and in the absence of feedback students and the teacher is greatly reduced efficiency of copyright of software products.

We give a brief description of some copyright systems.

Dreamweaver (www.adobe.com/products/dreamweaver). This multipurpose tool software. Allows you to create web pages without any knowledge of HTML. Dreamweaver 8 is part of an integrated multi-purpose system Studio 8 (http://www.adobe.com/products/studio).

Dazzler and Dazzler Deluxe. Dazzler system designed for multimedia presentations. Dazzler Deluxe - an advanced version of the system with additional capabilities to support interactive multimedia courses. Both systems are focused on IBM-compatible PC. The main development tools are a set of icons. Dazzler supports learning through the Internet.

Seminar. (www.seminar.co.uk). Seminar is designed for teachers who are not computer specialists. The author need only a typical office computer skills. The basic model is a sequence of screens on which information is presented in different ways and ask questions to check

understanding of the listener and consolidate their knowledge. In the Seminar supported import and export of SCORM-packages.

LERSUS (www.lersus.de). LERSUS - software that allows you to create interactive educational materials for e-learning. Training modules created by LERSUS, consistent with the standards of e-learning: SCORM 1.2, IMS Content Packages, LOM. Created in LERSUS training materials can be imported into the distance learning system (LMS): Moodle (www.moodle.org), Ilias (www.ilias.uni-koeln.de), WebCT (www.webct.com), SCORM compliant systems .

eAuthor. This is the designer of distance learning courses, which allows you to create e-learning courses, tests, exercises and other forms of electronic textbooks. eAuthor can create a variety of design templates of electronic textbooks.

Designer courses. (www.prometeus.ru). Designer course is designed for quickly creating multimedia courses in online format (as a set of linked HTML-pages). The author creates the structure of the course, and then fills it with content (text, images, multimedia files, links to the Internet, etc.). Upon completion of the course is translated into HTML-format. Dizayner courses can be used within the system of distance learning Prometheus and autonomously, for example, to create a multimedia CD-ROM drive.

Learning Management System

These systems are typically designed to control a large number of trainees. Some of them are targeted for use in educational institutions (eg, Blackboard, e-College or WebCT), others - on corporate training (Docent, Saba, Aspen).

Their common feature is that they allow you to keep track of user training, keep their characteristics, count the number of visits to certain sections of the site, to determine the time spent by the trainees to undergo a certain part of the course, users register for the course. In addition, there exists the possibility of testing knowledge and online communication.

CMS

Content Management online courses provides an opportunity to place educational materials in various formats and manipulation. Typically, such a system includes an interface with a database that collects educational content, with search keywords. Content management systems are particularly useful in cases where the course is working on creating a large number of teachers who need to use the same pieces of educational materials in different courses.

Learning Management System and Training Content

These systems combine the capabilities of the two previous, and are currently the most promising in terms of distance learning. The combination of managing a large flow of students, the possibility of rapid development of courses and the availability of additional modules allows systems management training and educational content to meet the challenges of training in the major educational institutions.

1.7. Standards and specifications of distance learning

Standard SCORM

In the well-known U.S.A. program "Advanced distributed learning» (Advanced Distributed Learning - **ADL)** developed the concept of specifications and guidelines, the combined title: "Referential model of shared content objects training material» (The Sharable Content Object Reference Model - SCORM).

SCORM - standard developed for distance learning systems. This Standard contains requirements for organizing the teaching material and the entire system of distance learning. SCORM ensures compatibility of components and their possible re-use: study material submitted by individual small blocks, which can be included in different courses and used in distance learning.

Also, a set of high-level requirements for the content of educational resources (www.adlnet.org). These include:

- Accessibility - an opportunity to place educational materials in various remote locations and move them between them (in particular, using the Internet), transmit them to build integrated resource or referral to them as necessary based on metadata standards, and packaging;

- **Interoperability** - ability to use the components of the training material developed with one set of tools or technology platform, in other educational systems with a different set of tools or platform;

- **Adaptability** to an issue of pedagogical tasks and individual needs of students;

- **Reusability** - flexible multiple introduction of the components produced educational materials in various computer courses;

- **Durability** - to withstand changes in technology without redesigning and reprogramming;

- **Increasing efficiency and productivity** by reducing **training** time and cost.

One of the basic ideas of SCORM - a compilation of electronic educational resources from blocks of teaching material, called shared content objects (Sharable Content Objects - SCOs).

Specification of IMS. Global International Education Consortium governmental organizations, educational institutions and industrial corporations IMS (Instructional Management Systems) has the following main tasks:

- Definition of technical specifications for interoperability (multimedia, internet training courses) and applications for distance education;

- Support of these specifications in a variety of educational products throughout the world.

Each group of specifications for IMS consists of three types of documents: the information model pattern of descriptions of educational facilities (educational texts, test questions, information about students and others) and a practical guide with examples.

Specification LOM

The purpose of LOM (Learning Object Metadata - Metadata training facility) - to facilitate the search, examination and use of learning objects developers, teachers, or automatic processes in the implementation of programs, as well as facilitate the sharing of such facilities by creating directories and repositories. Standard offers a basic framework that can be used to create practical solutions.

Total LOM is a semantic model describing the properties of the training facility. LOM defines the legal aspects for learning objects, the semantics of metadata elements, their dependence on each other. The information presented in the LOM, are intended to support the exchange of information. This standard provides a linkage of learning objects. Learning objects are described by data elements, grouped into categories.

1.8. Requirements for an organization the distance learning

Of great importance for the organization distance learning to play the choice of electronic learning environment, providing a training process [15]. The main criteria for choosing the LMS are the following:

• **Functionality -** the presence in the system functionality at various levels, such as forums, chats, an analysis of the activity of the trainees, government courses and trainees, and others;

• **Reliability -** characterizes the ease of administration and ease of updating content on existing templates. Ease of management and protection from external influences significantly affect user attitudes toward the system and the efficiency of its use;

• **Stability -** the degree of stability of the system in relation to different modes of operation and the degree of activity of users;

• **Cost -** the sum of the cost of the system itself, as well as the costs of its implementation, course development and support;

• **Content development -** built-in editor of educational content is not only facilitates the development of courses, but also allows you to integrate into a single representation of educational materials for various purposes;

• **Support for SCORM -** SCORM is an international standard through the exchange of electronic courses and the lack of system support it reduces mobility and allows you to create portable courses;

• **Verification system knowledge -** allows online students to evaluate knowledge. Usually, such a system includes tests, tasks and controls the activity of trainees in the forums;

• **Usability -** an important parameter, because the potential students will never be to use the technology, which seems cumbersome and makes it difficult to navigate. Technology training should be intuitive;

• **Modularity -** in modern systems to courses may constitute a set of micromodules or blocks of teaching material, which can be used in other courses;

• **Access -** the trainees should not be barriers to access to the curriculum, time or their location.

These selection criteria allow the LMS to choose distance learning technologies.

Currently, there are two main branches of management systems e-learning:

• commercial LMS;

• open-source LMS.

Commercial LMS

These systems represent a commercial development, focused on the use of distance learning or in distance learning within the school.

"Bitrix: Site Manager" - LMS, widespread and more famous. Bitrix differs serious enough capabilities to help solve almost any problem. However, the design of the site and its initial setup can be only by specialists, as well as the system is very demanding on server resources.

The system of "Prometheus" - a software wrapper that provides not only distance learning and testing students, but also allows you to manage all activities of the virtual school, which contributes to the rapid adoption of distance learning and the transition to widespread commercial use.

Freeware LMS

Based on analysis of existing OpenSource LMS systems we have identified the following: ATutor, Claroline, Moodle, OpenACS, Sakai. The main criteria for selection were chosen degree of support systems and multi-language support.

ATutor (http://www.atutor.ca) is a freely available web-oriented system of management of educational content tailored to the ideas of accessibility and adaptability. Administrators can update or install Atutor a few minutes to develop their own design templates system. Educators can quickly assemble, structure the content of educational material for training in on-line mode. Trainees work with a flexible, adaptive learning environment.

Claroline (http://www.claroline.net) (Classroom Online) - Platform construction sites of distance learning, created with the wishes of teachers. The application was created at the Institute of Pedagogy and Media of the Catholic University of Louvain. Claroline allows you to create lessons, edit content, manage them. The application includes a generator quizzes, forums, calendar, feature restricting access to documents, links, a system for monitoring student progress, the module authentication.

Moodle (http://moodle.org) - application for organizing online-lessons and training web-sites. The project was designed to spread the socio-constructivist approach to learning, which implies that:

• new knowledge can be acquired only on the basis of previously acquired knowledge and existing individual experience;

• the learning process will be much more effective when the student transfers or in other words, explains the other knowledge.

In this approach, based on the experience of an apprentice who is best suited for learning the required material and not just publish and modify the information that the student must learn. This approach allows each party to the learning process turns to be a teacher and pupil. The teacher must guide the discussion and joint activities in such a way as to collectively achieve the goals of education. Moodle is especially suitable for use in traditional training, in particular, for hybrid courses, which makes the system in addition to presentational teaching.

Moodle works on all computers where you can install PHP and run a MySQL database or PostgreSQL, and besides, the system is suitable for creating websites with multilingual content.

OpenACS (http://openacs.org) (Open Architecture Community System) is a system for the development of scalable, portable educational resources. It is the basis for many companies and universities involved in the use of e-learning.

Sakai (http://sakaiproject.org) is an online system for organizing the teaching of educational space. Sakai is a system with a fully open source, which is supported by a community of developers. The system is integrated support for standards and specifications for IMS Common Cartridge, SCORM.

Thus, systems with open-source can solve the same problems as commercial systems, but users have the opportunity to refine and adapt the system to their specific needs and current educational situation.

Table 1 provides a comparative analysis of the main indicators of these systems.

Table 1.

Relative index	Name of system				
	ATutor	Claroline	**Moodle**	OpenACS	Sakai
Rating Systems	5	4	**1**	3	2
Current version	1.5.3.2 (2006)	1.7.8 (2006)	**1.6.2 (2006)**	5.0.3 (2006)	2.2.2 (2006)
License	GPL	GNU/ GPL	**GNU**	GNU	ECL
Number of users	300	685	**130000**	1000	5000
Rate traffic (alexa.com)	103,527	98,771	**8,091**	56,756	128,842
Multilingual interface	Yes, more than 30 languages	Yes, more than 30 languages	**Yes (54 languages)**	No	Yes (10 languages)
Russian language support	Yes	Yes	**Yes**	No	Yes
Supports SCORM	Planned	Yes	**Yes**	No	Yes
Support IMS	Planned	Yes	**Yes**	No	Yes
Structure	kernel + set of modules	monolithic	**kernel + set of modules**	modular	kernel + set of modules

Expandable	Yes, by external modules	depends on the developers	**Yes, through external modules**	depends on the developers	Yes, through external modules
Additional software	Apache, MySQL, PHP	Apache, MySQL, PHP	**Apache, MySQL, PHP**	Oracle, Postgre SQL	MySQL, Oracle
Platform	Windows, Linux, Unix, MacOS	Windows, Linux, Unix, MacOS	**Windows, Linux, Unix, MacOS**	Windows, Linux, Unix, MacOS	Windows, Linux, Unix, MacOS
System testing	Yes	Yes	**Yes**	Yes	Yes
Support for external tests	No	No	**Yes**	No	Yes
Reliable server (0-5 points)	3	3	**4**	3	4
The stability of the server (0-5 points)	3	4	**5**	3	4
Restriction on the number of listeners	No	20000	**No**	No	No
The verification system of knowledge	tests	tests, exercises	**tests, assignments, workshops, activity on the forums**	tests	tests, assignments, active, notices in the forums
Reporting system	Under developed	Medium development	**Developed constantly developing**	Under Developed	Developed, constantly developing

1.9. Distance Education in Uzbekistan

At present, Uzbekistan has the following system of distance learning:

Distance Learning System TashGTU **http://134.28.77.133:8080/index.jsp** This learning platform distance learning system, developed at the Tashkent State Technical University. The system has passed the appropriate test at the Department of Telematics this university.

Polytechnic Institute (FERPA) **http://www.farpi.uz/index.shtml** In October 2004, with FERPA is an **Institute of Distance Education (IDE) http://distance.farpi.uz**

The aim of IDE in FERPA is to organize the work of structural subdivisions of the Institute and support educational activities, using distance learning program of higher education in accordance with the requirements of state educational standards and licensed institution to conduct educational activities.

Distance Learning System http://www.dl.uz

The system contains the necessary tools to create, control and management courses. It consists of the following elements: the registration system, the system will create the course, training system, communication system, the system of news. The system allows the teacher to create, edit, update and maintain a systematic training.

Distance Learning System - estudy.uz, developer Khamidov V.S. This distance learning management system is implemented as a server-side web-application. The system is written in php using object-oriented programming. The system is running a web-server Apache, and uses MySQL database for storing and processing data. Working with the system is made through the web-browser, by accessing the site, on which is the system itself.

The system is based on framework Code Igniter, providing an object-oriented approach to fully realize the architecture MVC (Model-Viewer-Controller - Model-View-Controller), which were built various modules of the system.
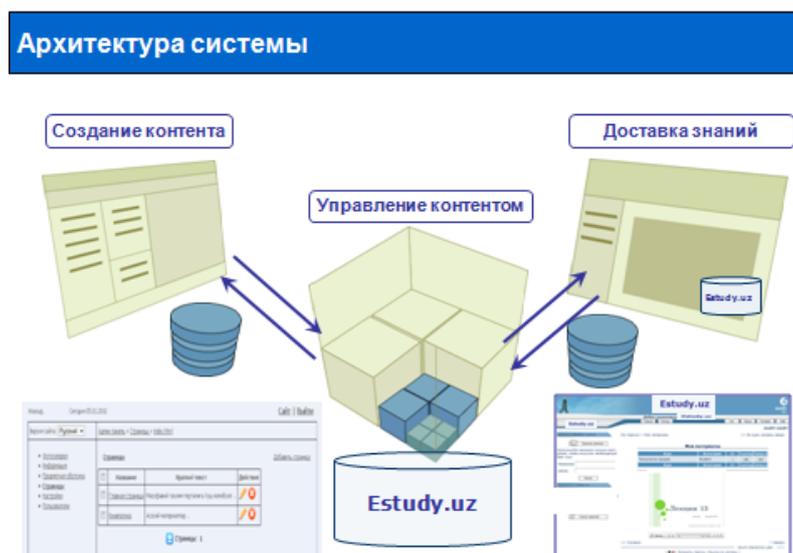
Fig.1.4 System architecture of Estudy.uz

Conclusion to Chapter 1.

Research and analysis of the educational process on the basis of information technologies, conducted in this chapter allow the following conclusions:

1. The problems of distance education, which additionally provides students with access to nontraditional sources of information, improves self-study, presents a totally new opportunities for creativity, knowledge acquisition and retention of various professional skills, and teachers allows us to implement a fundamentally new forms and methods of training.

2. Analyzed and identified educational, technical and organizational characteristics of distance learning, which are the main source of improving learning.

3. Investigate promising technologies, distance learning, and the main functions and features of content management systems and learning process.

4. Allocated requirements for the organization distance learning.

5. Existing standards and specifications of e-learning.

6. Comparative review of commercial and freely distributed systems of distance learning.

As a result of qualitative comparison and analysis of existing LMS systems, provide a rationale for the choice of Moodle for the integration of multimedia course in the learning process.

CHAPTER 2. STEPS OF DEVELOPMENT MULTIMEDIA COURSE AND ITS INTEGRATION INTO EDUCATIONAL PROCESS

2.1. Electronic multimedia lecture notes

Current stage of the new information capabilities in a lecture learning process should prevail electronic lecture notes, instead of a hardcopy.

In contrast to the electronic textbook, where the management of cognitive activity implemented in an implicit form, which have greater freedom of choice of tempo and order of transmission of educational material, electronic lecture notes (ELN) is for the lecturer. It is used as a lecturer in the light of his individual manner of lectures, the specifics of the discipline, the level of preparedness of students, etc.

Electronic synopsis allows software to combine the slideshow text and graphic support (pictures, diagrams, drawings) with computer animation and numerical modeling of the processes, showing documentary records of field experiments. It combines the technical capabilities of computer and video technology in the provision of educational material with live communication lecturer with the audience. In fact - this is a new and asset management of educational process in the audience with a sufficiently large number of students [3].

Quality improvement ELN achieved by the use of information technology training keywords: scanning the scientific and educational graphics, imports from the Internet unique photos, training "live" graphs, and animated models.

The basic unit of ELN is a slide or frame to provide a visual educational information. Comparison of software tools for developing electronic learning materials, as «WebCT», «ToolBook II Instructor», «Power Point», allows us to opt for the latter - because of its wide distribution, the rapidity of development of subject-teachers with sufficient opportunity provided by the animation material import various graphics applications, movies and sound files.

When you create ELN must take into account the ergonomic requirements of visual perception of information. Requirements include: readability of fonts markings, lack of aggressive fields and unpleasant sensations in the dynamic reproduction of graphic materials, proper arrangement of information in the field of perception, lack of color uncomfortable, optimize brightness plots with the background, lack of fine detail littering the field of the main object, and so e.

Number of slides in a lecture on general scientific subjects, depending on the topic, ranging from 35 to 50 slides. Sometimes this number is redundant and unused portion of a slide can be moved to the next lecture. The slides, as a rule, it is subject lectures, the basic provisions,

a short text comment. The greater part of the electronic abstract occupied copyright drawings, diagrams, photos, imported from textbooks and other available literature, as well - imported from the Internet and CD-ROM drive. Most of the schemes and graphics lecturer should be animated, and the temporal sequence constructing the image on the screen should correspond to the usual pace of construction of these drawings or diagrams on the blackboard. In an illustrative material may be used the results of computer simulation. Everything depends on the used in computer practical interface.

You can also use the materials of computer encyclopedias («MS Encarta», «Nine Worlds Encyclopedia of Space», «Earth Quest Multimedia» and some others). It is quite possible was the use of the World Wide Web in electronic lecture notes. It is enough to cause a minimized window, without interrupting the presentation, materials sites NASA, several universities in the U.S.A or Russia. Upon completion of the traffic, the results or work «on-line» You can show the audience.

With the editor «MS Power Point» You can easily organize quick control (rapid testing) learning lecture material. Tests show it is desirable in an automatic mode for a short time to avoid the temptations of peeping, cheating and "venting" of students. Questions students may submit in writing with names or anonymously, according to the purposes of testing.

It should be noted that the process of improving ELN is permanent and «Power Point» allows for 10 minutes before the next lecture to make a "home-made" in the already existing material and to remove outdated information. If the electronic summary of discipline is created, it can be easily adapted to create videoslayd-lectures. Conversely, materials, lectures videoslayd easily incorporated into ELN. It dramatically increases the effectiveness of teachers at work on the road, in the branches and representative institutions of distance education.

With the decline in hours of classroom training, development and implementation of the educational process ELN for general scientific disciplines was timely and very topical.

Note that the use of multimedia in the lecture work requires new approaches to the aesthetics of the learning process: need to take account of humanitarian components of contemporary culture. Making lectures, presentations, showing video clips and computer virtual reality, should not significantly lag behind the level design of Web-pages of the Internet.

This condition has high professional requirements for teachers proficiency software and collaboration on the electronic course of lectures of subject teachers and computer designers.

2.2. The main stages of development tools and training materials

The technical preparation of electronic educational resources (EER) can be divided into two major phases:

1) preparation of various electronic components of the training material;

2) layout of electronic components of educational material in a single system.

The first step is preparing the background materials for electronic educational resources (educational texts, graphics, animations, audio / video clips, HTML-pages), including the development of training packages applications. At this stage, typically use software utility: text and image editors, animators, software digitizing audio / video, instrumental, programming environments, etc.

The second stage - in some way put together computer files, a computer program to produce learners realizing conceived by the author of the content and curriculum scenario training and providing advanced feedback in interactive learning system with students and teachers-users [3].

The layout of electronic materials in electronic educational resources can be achieved through direct programming learning script at any algorithmic language: BASIC, Pascal, C, Java, etc. It also may be considered the use of HTML. However this approach are inherent drawbacks, such as:

- High complexity of the process of developing electronic educational resources;

- The need to attract professional programmers;

- The inability to make changes without programmers;

- Significant dependence didactic quality of the script training on teaching skills of developers.

An alternative way to build electronic components of the training material of electronic educational resources is the use of instrumental software systems. Here, too, there are two approaches - the use of software tools of general or special purpose.

The most simple and accessible for teachers of general purpose tools is the program PowerPoint, is included in the software package Microsoft Office.

However, the possibility of general-purpose software packages are limited in terms of creating a functional full-ESM. For example, in Power Point - this is only the presentation of educational material with a mostly linear navigation. There is no principal for the organization of a full-fledged independent cognitive activity - ability to provide arbitrary navigation training materials and facilities for the preparation of interactive exercises for self-monitoring and training.

2. 3. Development of multimedia course with the help of the program iSpring Presenter
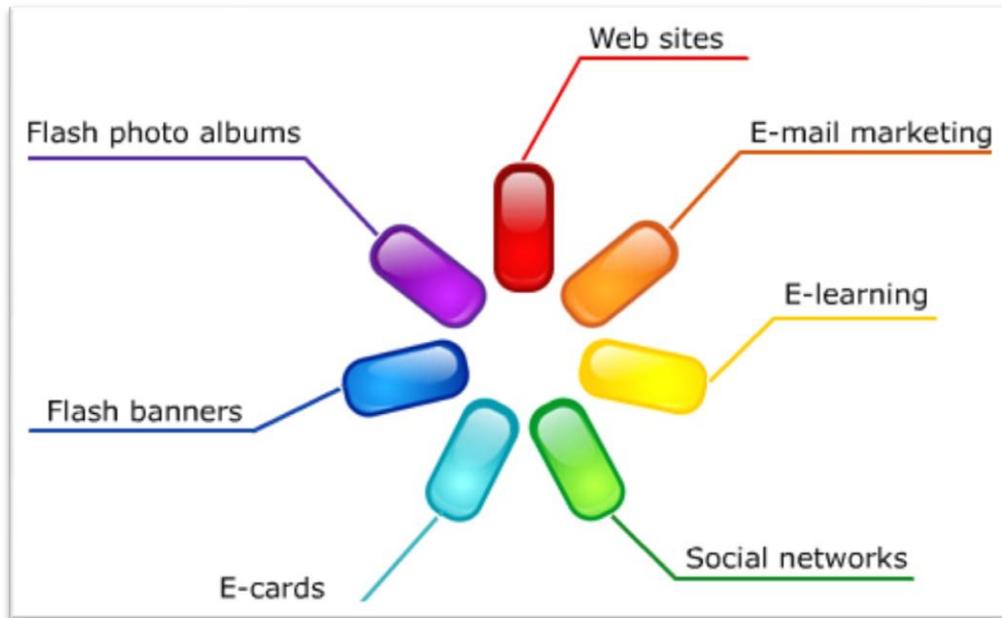

Fig. 2.1 iSpring - new opportunities for the development of educational multimedia lectures

iSpring Presenter - is unique tool for the creation of training courses, presentations and tests in a format Flash. iSpring converts PowerPoint presentations to SCORM-compliant Flash movies, ready for publication in a learning management system directly from PowerPoint. The integrated application for creating tests QuizMaker will complement the training course online tests [20].

User-friendly interface makes the program work, providing the user with different settings for presentations.

This program allows you to create courses with built-in testing, which allows the teacher to facilitate the work in distance education. After passing the test results are sent to the teacher by e-mail [19].

Work in iSpring Presenter

Fig. 2.2. Toolbar iSpring Presenter

After you install and run the PowerPoint has a new toolbar, which consists of seven buttons: "Quick publish", "Published", "Resources", "Insert Flash", "Renovation", "About", "Register".

Publication

The section, which sets all the settings in the conversion of the PPT SWF. Settings under five tabs. The first of these, you can specify the name of the presentation, save the folder and file name. There are two main ways to output Flash-movie: one file (SWF, EXE, SWF, plus HTML, possible full-screen mode) or individual slides - create a file for each image presentation.

On the right side tab, you can customize the shell, which will play the presentation. The latter function provides a very broad scope for use of their Flash-rollers - from the usual show presentation (when viewing the slides will be available to rewind and drawing tools and the allocation of part of the presentation directly on the slide) to create an animated banner (no additional controls will not be shown). Also there is a shell for creating Flash-Gallery (you can add a description and link for each frame, a preview of the next line to show slides) or a stylized Media Player player.

On the **Settings tab,** set the settings file itself - the size of the presentation (in pixels), the scale display, the frame rate per second, the background color and version of Flash.

Tab **"Media"** offers a variety of compression presentations.

In the **"Author",** you can specify information about the author presentations, company, add your logo. The data will be displayed to the left of the presentation.

Options tab **"WEB links** define the behavior of links in the presentation. You can link, which will be passed at the end of the presentation or by clicking on it. In addition to the presentation, on your computer, you can send it immediately by e-mail (after conversion will start your default mail client), upload to the site or FTP-server or use the service SlideBoom.

The button **"Quick publish"** starts with the conversion settings used last time, but when you first start - with the default settings.

Resources

In this window, tab **"Audio"** is a list of all the slides and resources presentation - background sounds, videos. Here you can include avtosmenu between them, reorder, add or remove new elements. Under **"Links"** is a list of all references to external resources and attached files. You can add a new file or link the corresponding buttons.

Insert Flash

Using this button, any slide can be turned into an existing computer Flash-video or Flash-game. Flash-files published on the Internet that provides access to presentations from anywhere in the world.

Features iSpring:

- Support PowerPoint 2000-2007 and Windows 2000/XP/Vista;
- Converting in one click;
- 180 + animation effects;
- Animation by letters and words;
- All transition effects;
- Support for 3D objects PowerPoint 2007;
- Flexible player;
- Supports embedded in the presentation of sounds, videos and Flash movies;
- Author information and company logo;
- Marker Drawing over Flash presentation;
- Show notes, sketches, slides, and the structure of presentation;
- Convert the formats. SWF,. EXE,. ZIP, HTML generation code;
- Monitoring the degree of compression of sound, video and images;
- Reducing the size of the presentation of 10 or more times;
- Support for the effects of text formatting.

Additional options:

- Reducing the size of the presentation of 10 or more times;

- Management of compressed multimedia content;

- Vector representation of the text and AutoShapes;

- Ability to save Flash-presentation in ZIP-archive.

iSpring Presenter - top quality converting PowerPoint presentations into compact Flash format while preserving all multimedia resources. Just one click you get a professional Flash-presentation, ready for publishing on the Internet. iSpring supports versions of PowerPoint 2000-2007 and file formats. PPT,. PPS,. PPTX,. PPSX.

QuizMaker

iSpring Presenter uses a tool that is convenient for checking students. With QuizMaker learning process can be made more vivid and interactive.
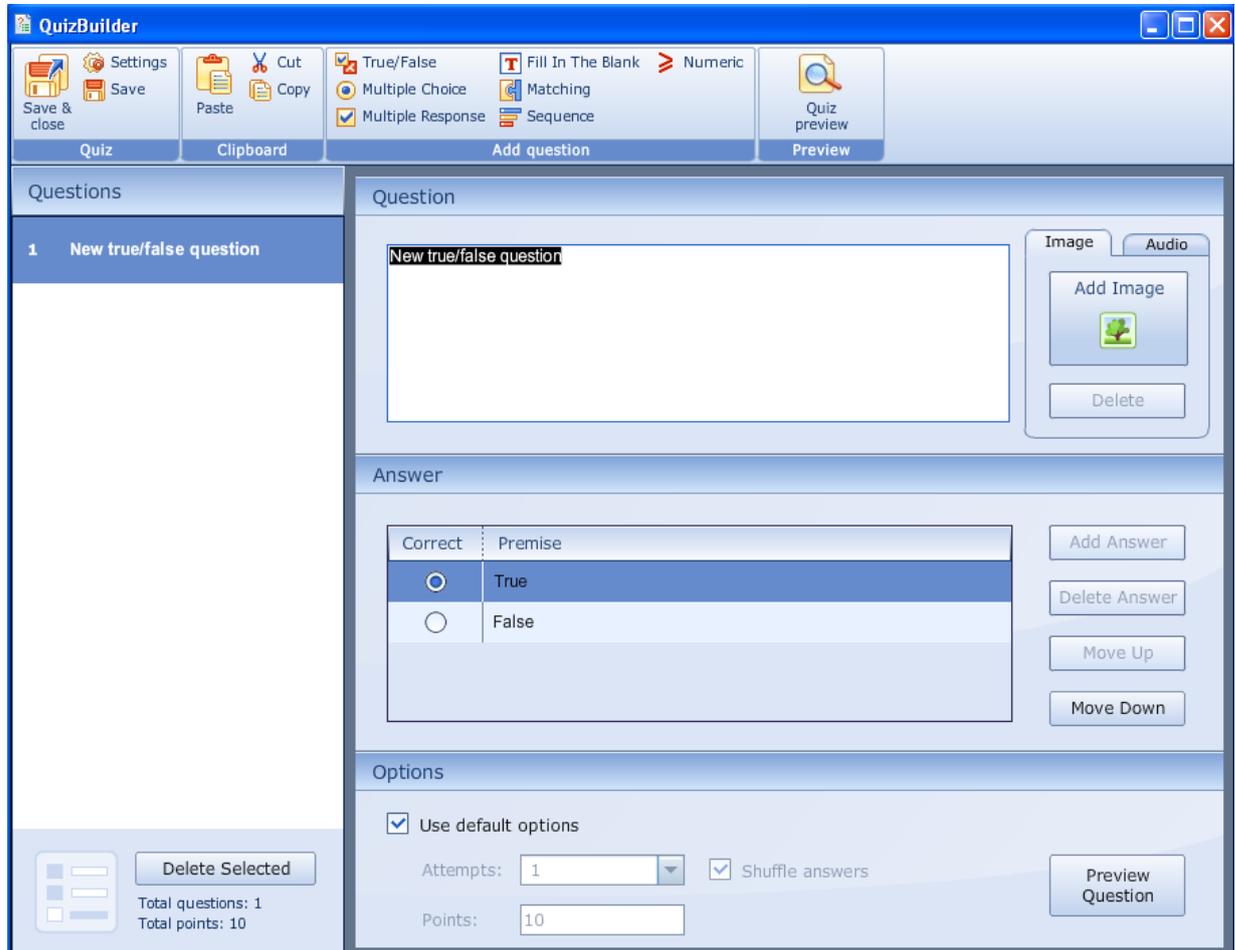

Fig. 2.3. Work in QuizMaker

Built QuizMaker allows you to create interactive Flash-based quizzes, evaluation forms and surveys. iSpring QuizMaker produces compatible content SCORM / AICC, which can also be uploaded into the LMS or merged with the presentation.

iSpring QuizBuilder easy to customize. You can specify different settings: managing the timing, number of questions, feedback, results of the quiz, and even interface trainee.

iSpring QuizMaker allows:

1. Creating quizzes with different types of questions:

- **True / False,** students identify, correct, or whether the statement is false.
- **Multiple Choice,** students have few alternatives to choose one of the answers.

- **Multiple answer,** the students have several alternatives, the correct answers may be multiple.

- **Are filled on a form,** students write their own response.

- **Compliance is** necessary to find a pair of matches.

- **Sequence,** students must arrange the answers in a certain sequence.

- **Numeric,** the answer is written in numeric form (for example, the result of the problem, etc.)

2. Support quizzes audio and images.

3. Setting interface.

4. Set the time of testing, the number of attempts.

5. Create some feedback based on the results of the user.

6. Placement of the quiz in any SCORM-supporting LMS.
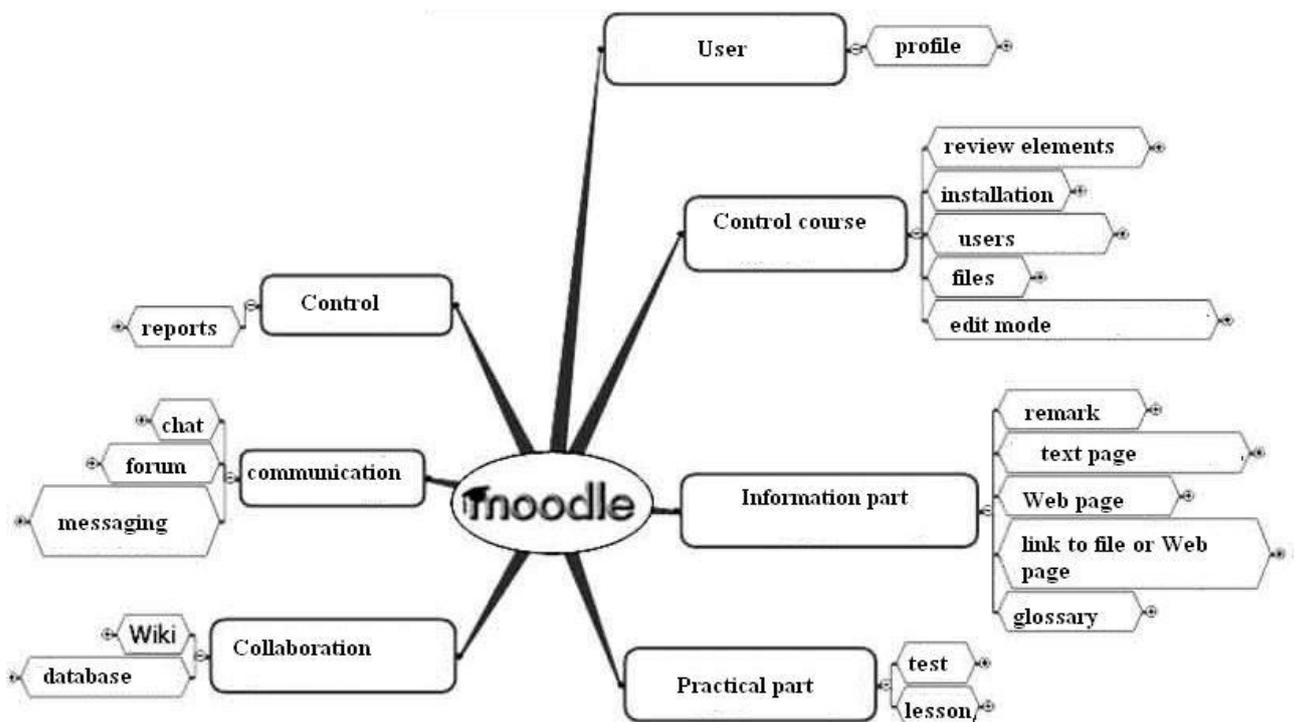
2. 4. Distant learning system - Moodle

Fig. 2.4. The structure of Moodle

Moodle is one of the most popular distance learning in the world. The number of registered installations close to 50 thousand. The system is used in tens of thousands of educational institutions in 199 countries and translated into 75 languages.

Controlling access to Moodle, is based on the target system's roles and responsibilities, which can assign and override a variety of contexts: the entire system, the categories of courses, one course, an element of the course.

Much attention is paid to the integration of Moodle in the information infrastructure of the institution, which provides many options for authenticating users and subscription rates on the basis of information from external sources [5].

Moodle interface can be configured by choosing an appropriate theme and setting of the blocks shown in the left and right speakers. Template interface and a set of blocks in each course can be tailor-made.

Moodle is convenient to administer. Almost all settings can be managed through the administration panel Moodle.

The basic project site is the site http://moodle.org, built on the basis of Moodle. The coordination of the project carries an Australian company Moodle PTY Ltd., The founder of which is the project leader Martin Dougiamas.

The word "Moodle" - an abbreviation of the words "Modular Object-Oriented Dynamic Learning Environment" (Modular Object-Oriented Dynamic Learning Environment). Moodle software is distributed as open source under the GPL. This means that to use Moodle necessary to observe the copyrights, but with certain freedoms. On the basis of Moodle can generate your own LMS, which will:

- Establish training courses, using both its own software, and computer materials developed by other programs and packaged in a package SCORM;

- Manage the learning activities of students;

- Monitor the implementation of tasks;

- To organize educational communication, etc.

Describe the **main features of Moodle:**

1. Free Distribution. No need to pay for the receipt, use and update, there is no limit on the number of licenses.

2. Open source code. For universities, many of which are not only using existing technologies, but also lead their own research, this factor is also very important. You can make some adjustments to empower Moodle their software modules.

3. The development of software. The multiplicity of the international community, leading the operation and development of Moodle, the presence of Moodle user associations in

different countries, guarantee the continuous development and improvement of Moodle, its compliance with current and future requirements of e-learning.

4. Easy installation, maintenance and operation. Moodle is easily installed on a conventional standard equipment, works without modifications in Unix, Linux, Windows, Mac OS X, and any other operating system that supports PHP.

5. Functional completeness. While a free and easy to use, Moodle allows implementation of virtually all the basic functions of a modern LMS. In the didactic Moodle is based on the concept of social constructionism, the essence of which is expressed by four principles: the development of new knowledge as a result of interaction with the environment, training is particularly effective when a student creates something for the transfer of experience to others; training as a result of interactions within a particular social group; study of motivation of behavior of individuals in the training group interaction.

In Moodle there are no functions related to the cost of educational services. But this is not a fault, but rather dignity, because many schools already have their own computerized accounting systems, open source code and data formats allow you to connect Moodle LMS based on Moodle with these systems.

These features of Moodle predetermine the choice of this medium for distance education many universities in the world.

2.5. Organization of distance learning in the LMS system Moodle

Moodle - system of management courses specifically designed to create quality online courses. This environment allows you to create a unified educational space for students and teachers of the course. Using Moodle, the teacher can exchange messages with students to create and check on jobs, post text and much more. Moodle - a free distributed software system for its functionality, ease of development and ease of use will satisfy most requirements of users to the systems of distance learning [8].

Moodle - versatile program that allows you to use various ways of presenting educational material, test knowledge and control performance.

Currently, a training course on the subject "The general psychology" on the platform Moodle. This course is designed for distance learning.

In this training course includes lectures on the subject "The general psychology" and tests. These components are compiled using iSpring.

Elements of a distance course

In preparing and conducting classes in the system Moodle uses the following elements of the course: a glossary, resource, task, forum, wiki, tutorial, test, etc.

Glossary allows you to organize the work of the terms, and the entries can be created not only teachers but also students. Dates listed in the glossary are highlighted in all the course materials and are hyperlinked to relevant articles of the glossary.

As **the resource** can be any material for independent study, research, discussion: text, illustration, web-page, audio or video file, etc.

The **task** - a kind of student, which is normally the result of the creation and upload to the server file of any format or create text directly in the system, Moodle. All created in the text, files uploaded to the student on the server, stored in the portfolio.

Forum - a very important tool, because a place where there are all the discussions. Forums can be structured in different ways and allow to evaluate the message. The postings can be viewed in various formats and can include attachments. Subscribing to a forum, participants will receive copies of all new messages on your e-mail.

Fig. 2.5. Organization the forum in the Moodle

Moodle supports a very useful feature of the collective editing of texts (part of the course **«Wiki»).**

An element of the course **"lesson"** to organize the walk-through allows the study of educational material. Solid materials can be divided into teaching units at the end of each of them to give quizzes on the assimilation of the material. This element of the course is convenient because it allows the estimation of the students in the automatic mode: the teacher only asks the system parameters of evaluation, after which the system will display each student's overall assessment for the lesson, puts it in the statement.

An element of the course **"tests"** allows the teacher to develop tests using different types of questions:

- Issues in the closed form (multiple choice)
- Yes / no
- Short answer
- Numeric
- Correspondence
- Random Question
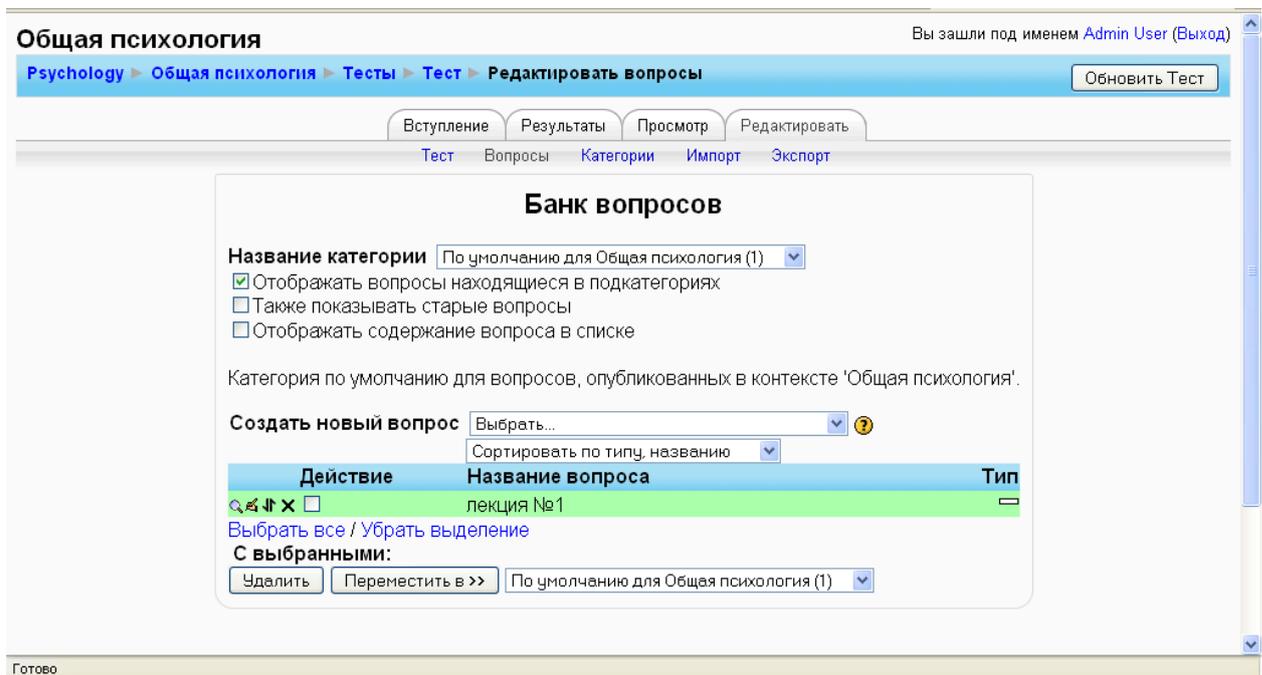- Nested response, etc.

Fig. 2.6. The editor issues

Test questions are stored in a database and can be reused in the same or different courses. On passing the test can be given a few tries. Maybe set a time limit to work with the dough.

Chat allows you to organize an educational discussion of problems in real time. Services "Messaging", "Comment" are intended for individual communication of teacher and student: review papers, discussion of individual learning problems.

Service "Teachers' Forum" gives teachers the opportunity to discuss professional issues.

Fig. 2.7. Organization of the survey in the Moodle

An important feature of Moodle is that the system creates and stores the portfolio of each student: everything handed to them work, all the evaluations and comments of the teacher to work, all messages in the forum.

The instructor can create and use part of the course any system of evaluation. All grades for each course is stored in the consolidated statements.

Moodle allows you to control the "traffic", the activity of students during their training activities in the network.

Conclusion to Chapter 2.

The analysis showed that the system LMS - Moodle is an optimal platform for implementation based on this distance learning, where:

1. Revealed that one effective way of distance learning is the use of electronic lecture notes, using Power Point software and iSpring Presenter.

2. The stages of the preparation of electronic educational resources, as well as the possibilities of linking electronic components of educational material in a single system.

3. Given the conditions set blocks of the system Moodle, contributing to generate its own system of learning management, with the desired quality.

4. The principles of distance learning in the LMS system Moodle, as the composition and the structure of their arrangement.

CHAPTER 3. MODERN EDUCATIONAL TECHNOLOGIES IN DISTANCE LEARNING

3.1. Features of educational technologies in distance learning

Specificity of distance learning provides a special selection and structuring learning content, depending on the model chosen. The interaction of the participants of the learning process in distance learning are the collaborative activities of students in small group collaboration, systematic discussion of the whole group discussed the problems in online forum, chat, video conferencing. This specific learning process, which is constructed in accordance with the logic of cognitive activity, but sold like any other means of Internet technologies, videoconferencing, interactive television and other interactive features.

Distance learning as a component of continuing education involves the use of educational technologies that are successfully implemented, both in full-time and in distance learning system, taking into account the specifics of each form.

Teaching technology is focused, coherent description of the teacher and students to achieve their teaching goals. Pedagogical technologies reflect interrelationship methods, organizational forms and means of training, the organization of cognitive activity of students [10].

According to the humanist pedagogy of modern pedagogical technologies is considered:

- Training in collaboration;
- Discussion;
- Role playing and simulation games;
- Situational analysis;
- Method of projects;
- "Student's portfolio".

Consider the specifics of various educational technologies in distance learning.

Education, in collaboration - is one of the main provisions of humanistic pedagogy. The teaching process is based on communication and collaboration between students themselves and with the teacher. Network teacher forms small groups (3-4 persons) in view of learners' abilities, their wishes and psychological compatibility. Communicating via the Internet most often occurs in writing. Written speech is different from an oral order that is the time to think about certain issues in a more careful formulation of his ideas, requires clarity and brevity (eg, chat), and promotes critical thinking.

Discussion. Problem-oriented training in humanistic pedagogy requires the ability to hold discussions at various levels. Discussion (from Lat. Discussio - research, review, analysis) is called a public dispute, whose goal is to determine and compare different points of view, search, revealing the true views finding the right solution to the disputed issue. Debate is an effective way of persuasion, as the participants themselves come to a particular conclusion.

The role of the teacher should be aimed at encouraging independent thought panellists. An important role played by leading questions. It is very important for all participants in the discussion are communicative skills: to support the discussion, with respect to the views of the interlocutor, convincingly explain their own. There are certain **rules of debate:**

- Discussion - is a business exchange, in which each speaker must discuss how you can objectively;

- Each statement must be backed up by facts;

- The discussion should give each party an opportunity to speak;

- Each statement must be carefully considered by all parties to the debate;

- Talking to be concise, adhering to a clear logic, refrain from lengthy speeches.

For the debate stands a special event or a special Web page where views of all participants in the debate are constantly accessing the small group and a teacher or all participants in the learning process. In a chat you can discuss any specific issue requiring rapid exchange of views.

Role and role-playing in online learning

Role and business game can be used as independent methods, as well as discussions or as a component of another method. Role-playing and problem orientation allows a deeper insight into the essence of the problem, "live" in his character this problematic situation and search for a way out of it. Business game allows you to create the necessary professional skills, independent thinking, make informed educated decision. Role-playing is based on roles, not necessarily related to any profession. It can simulate both real and imaginary situations. The educational meaning of any educational games and practices is to develop such scenarios the game, aimed at the development and further improvement of the skills needed in real conditions.

In a distance learning environment is online gaming, and communication - virtual. To use role-playing and simulation games in the Internet-learning requires a special Web page on which are placed all the necessary materials. In role-playing and business games are widely used on-line conferences, and chat. Video conferencing allows real-time simulate a particular situation.

The situation analysis in e-learning

Situation analysis - one of the problematic methods of training. It is based on the organization of business and role-playing and discussions. Problematic situation presented in the form of text, the characters are taken from real life situations with specific names and fates. The problem situation analysis - to understand why they got into these situations. In pedagogical dictionary gives a definition of the method of situational analysis: the method of training, which is most often applied in business education, significantly increases the degree of mastery of the material and is used as an element of the business game, and brainstorming. The main purpose of the situational analysis - to teach students to apply theoretical knowledge in practice and make the right strategic and operational decisions. The method of situational analysis is applied in distance learning. The situation itself is placed on a special web page, organized by the chat to indicate the problem, you can use video conferencing, but with feedback. Here, in advance to find out what knowledge is required for students to discuss problems encountered and where these skills can be learned (specified by the Sites or other sources of information). These discussions build on the specific situations with specific fates of people to create the awareness to feel this or that concept.

Project-based learning in online learning

Project activity is widespread in education, both in traditional training and in the distance. Project-based learning - a way of achieving the didactic objectives through a detailed development issues, which should be completed very real, tangible, practical result of the layout in a specific product activity. Project-based learning involves the application of theoretical knowledge, observations, laboratory and experimental work in the creation of a specific product and its protection during the presentation and discussion. The project includes research, the search activities, discussion, brainstorming, role-play and business [14].

In distance learning using telecommunications projects, representing a joint training and learning, research, creative or gaming activities of the project participants, separated by a distance, organized on the basis of computer telecommunications. The activities of the project participants is a common problem, purpose, agreed methods and ways of solving problems and aims to achieve a joint outcome.

In the telecommunications project online learning, project participants do not know and do not see their partners. With the formation of small groups provides opportunity to meet members with each other, using a representation letters, photographs, questionnaires, registration forms. Interaction of the project is carried out via e-mail, chat, forum. As a data storage project

coordinator organizes a general discussion of the problem, for this purpose was called a teleconference, held a roundtable discussion or off-line.

The joint project activities should be prepared: to debate, to search for relevant information, analyze it, draw conclusions, generalize, make observations, carry out practical work and experiments.

"The portfolio of the student"

"The portfolio of the student - it is educational technology, aimed at building capacity for self-evaluation, evaluation of the actions of others, to reflection. Technology" Portfolio disciple "means" build the capacity for self-evaluation ", i.e:

- Objectively evaluate the results of activities;

- Objectively determine the reasons for failure;

- Identify ways to address the shortcomings, errors;

- Objectively and calmly to the external evaluation of other people.

The concept of self-esteem broader concept of self-control and self-examination. "The portfolio of the student" - a tool for self-evaluation of its own cognitive creative work of a student reflection of his own activities. This set of documents, which provides:

- Tasks the student to select material in the portfolio;

- Questionnaire for the expert group for the objective evaluation presented at the presentation of student portfolios.

For organizations that work in a remote form for each student provides own web page, which will be his "portfolio". The student selects in its "dossier" of work performed by him on the self-employed (tests, tests, essays, papers, etc.). The main thing in this work - the student self-esteem, in the form of reasoning, argumentation, reasoning. Students can submit their material of the whole group for evaluation, inviting them to your page, opening a password. Approaches to the creation of a "portfolio" may be different, the main thing is that students learn to analyze their own work, own successes, to objectively evaluate their capabilities and to see ways of overcoming difficulties.

The choice of methods and techniques of training corresponds to the selected concepts and learning objectives, as well as models of distance learning. Modern pedagogical and information technologies provide the content of Internet training. In addition, the education and information and communication technologies become more intertwined with the implementation of the educational process in a remote form (table 1).

Table 1

Appropriate teaching and communication technologies in distance learning

Teaching Technology	Communication Technology
Education, in collaboration, small group collaboration	forum, chat, e-mail, blogs
Discussions	forum, chat, blogs, video conferencing
Role-playing and problem orientation	forum, chat, tele-and videoconferencing, system skype;
Situation Analysis	chat, forum, teleconference
Project-based learning	forum, e-mail, web quest, blogs, wikis, online resources
Student's portfolio	hypertext, multimedia, e-mail, forums, personal Web Page
Brainstorming	chat, video conferencing, skype system
Lecture	hypertext, presentations, multimedia, video conferencing, the system skype, audio lectures, television lecture

Teacher should consider deeming the planning and conduct of training in distance learning.

3.2. Methods of application of multimedia resources in the educational process

Experience of application of information and remote sensing technologies in the educational process in different ways allows us to speak about certain benefits such as the educational process, namely:

- becomes possible radically new organization of independent work of students;
- increases the intensity of the training process;
- students, an additional motivation for the cognitive activity;
- availability of educational materials at any time;
- the possibility degree of self-learning material for each topic, an unlimited number of times.

Interactive technology-based media will solve the problem of "remoteness" as a web-based communications, and through interactive CD - courses and the use of satellite Internet.

Methods of cognitive activity of students using multimedia classified into: teaching scenario training, methods of active learning, methods of projects, methods of information resources, methods of demonstration examples [9].

The most common method of training is explanatory, illustrative, in which attention focuses on the presentation of knowledge in a particular system, in a visual and accessible form, from simple to complex. Play and repeat mode activity on the instructions of the teacher is the main feature of the method, called reproductive. Explanatory, illustrative and reproductive methods differ in that they enrich the students' knowledge, skills, and abilities and provides them with basic mental operations (analysis, synthesis, abstraction, and so etc.), but do not guarantee the development of creative abilities of students, i.e do not allow them to systematically and purposefully shape.

In pedagogy and psychology show that personality formation and mental development of a permanent and sustainable influenced by knowledge based on cognitive interest. The development of cognitive motivation significantly increases the activity of students and the effectiveness of the learning process.

In our case, such activities may be handling students with multimedia resources. Active learning methods in conjunction with the use of multimedia to help change the role of the student, turning it from a passive listener to active participant in the learning process. Active learning methods in conjunction with the use of multimedia technologies can generate knowledge and skills by engaging students in active learning-cognitive activity . Trainees learn how to plan upcoming work efficiently organize its execution, exercise self-discipline and work in a certain tempo. Passive perception of information students are retained in memory:

- 10% of what is read;
- 20% of what they hear;
- 30% of what they see;
- 50% of what they see and hear.

However, with the active perception of information using multimedia resources stored in the memory up to 80% of what we said to ourselves, and to 90% of what they were doing themselves, and contributes to developing the following objectives:

- formation of productive communication skills in educational settings, close to real conditions;
- develop skills to argue their point of view, to formulate and express their thoughts;
- develop the ability to analyze situations, to provide their causes, to find means and ways to resolve them;

- ability to build logic judgments necessary to protect their positions in front of others;
- improve the processes of attention, memory, thinking.

The most common methods of multimedia resources in the educational process include:

Project-based learning. In the world practice are finding ways of organizing the independent work of students, providing for the involvement of each student in active cognitive activity. One way of such independent work is a study in collaboration. In place of the front work has increasingly individual, pair and group. Pair or group work with students using multimedia resources is far more effective than explanatory, illustrative and reproductive techniques.

Ideas proektnosti well with individual and group form of organization of independent work of students. The first projects, where students from different countries were given the opportunity to communicate regularly through a computer network, appeared in the early 80-ies. Further research in this area have shown that the unusually high pedagogical effect can be specially organized teamwork of students in the network c using multimedia technology. It is based educational projects, which are carried out jointly by several (geographically separated), student groups, which are interconnected computer network.

Here, the basis of the educational process should be considered as a student activity, the mobilization of its intellectual, volitional effort, emotional, and the teacher must guide, adjust these activities. The method of training projects is one of the methods of the creative development of personality.

The main requirements for use of project are:

- in the presence of significant research, creative plan tasks requires an integrated knowledge of the research to find solutions;
- practical, theoretical, cognitive significance of expected results;
- individual (individual, pair) activities the student;
- the use of basic knowledge from various fields needed to work on the project;
- structuring of the content of the project;
- application of research methods;
- discussion of research methods;
- data analysis;
- design outcomes;
- findings and conclusions.

Project-based learning always involves a specific problem solution, which provides the one hand, the use of a variety of methods, on the other - the integration of knowledge, skills from

various fields of science, engineering, technology and creative fields. Work on the method of the project involves not only the availability and awareness of a problem, but the process of disclosure.

Implementation of project tasks helps:

- formation of basic knowledge, skills and further their replenishment and development;

- be a sustainable motivation and a sense of need to acquire new knowledge needed to work on the project;

- enhancing the cognitive activity of students, especially in the performance of the project Computer Science;

- development of creative abilities, allows us to implement a project task in accordance with their own vision;

- education initiative in acquiring new knowledge and independence in expanding their scope.

Method of resource

The main advantage of this method - an opportunity for learning to handle multiple educational information in an accessible own pace and convenience. Teaching literature and multimedia tools are successfully carrying out all teaching functions: learning, developing, training, encourage, control and corrective. The most widely used two types of work with information resources: in the classroom, teacher-led and independent work to consolidate and expand knowledge.

Here, one important factor is the fact that modern hypermedia technology, implemented in the Internet allows communication between a fragmented multimedia information located on different servers, to make its structuring, thus creating a holistic multimedia information resource, the size of which can is in principle not limited, which is especially important because of the lack of quality and affordable printing products [13].

The main differences between this method from other traditional methods of programmed instruction and the method of work with the literature are as follows:

- use of multimedia resources are on different servers on the Internet;

- number of multimedia resources and links between them can be almost unlimited;

- system of presenting information of multimedia resources through the hypertext allows the learner to form their own path of passing the training material, to deepen and broaden the knowledge of their wishes and capabilities;

- hypermedia technologies used in the Internet, allow appropriate training material embedded in images, animations, video, voice information.

The main purpose of using the method of information resource - the consolidation and extension of theoretical knowledge by targeting students in large numbers in a wide range of information that he needs and meets the educational needs.

The disadvantages of the method of an information resource may include a significant amount of time as part of the teachers involved in gathering and structuring of multimedia resources, increased demands for quality used multimedia resources in the learning process, the uniform resource (similar to the interface and navigation), and from the student : navigation, viewing, reading, etc.

3.3. The use of multimedia technology in the classroom to the general psychology

A characteristic feature of the course "The general psychology", in general, and its sections, is that it included large amounts of highly heterogeneous information. To learn the information necessary to rely on certain sections of related disciplines and the use of multimedia technologies.

In the course "The general psychology" requires maximum visibility and use of a variety of illustrative materials, which, along with the traditional graphics and text, used tables, audio and video.

Multimedia lectures for learning the basics of psychology, provides systematic connect the slideshow text and graphic support (pictures, diagrams, graphs, drawings, etc.) with computer animation, numerical simulation of the processes. This course combines the technical capabilities of computer and audio- video in the presentation of educational material (visual-figurative representation of information) and communication lecturer with the audience (verbal and logical presentation of information).

The use of multimedia technology in lecture courses helps to improve concentration of students, the processes of understanding and remembering, the formation of clear ideas, the assimilation of theoretical knowledge (concepts, concepts, etc.), enhancing the cognitive activity of students.

Multimedia - lecture transformed from the usual lectures in a more flexible and didactically effective, because multimedia technology can improve the lecture informative; stimulate motivation and visibility of learning through the use of various forms of presentation of educational material, as well as implement the most difficult moments repeat lectures.

To do this, develop templates include the design, creation of several options autopartition slide set of optimal amounts of text and graphics, the definition of their relationship.

Designed templates for multimedia options lectures used materials copyright of training programs, Internet resources, developed schemes and test materials. As a technical tool for solving the section "The general psychology" has been chosen program shell Power Point, which is one of the most popular tools for creating multimedia software products. Quality Power Point make it possible to incorporate multimedia versions of lectures virtually unlimited in size and composition of illustrative material and make this software the best tool that can be successfully used by even novice users.

At present, prepared a full course of lectures on the media "The general psychology". In selecting the topics of lectures, we were guided by the need to attract a large volume of demonstration material, availability of information, the relative complexity of the issues addressed in the relevant sections of the course. Each lecture presentation consists of 20-30 slides, which represented the name of the lecture, her plan, the main issues addressed and the basic content of the material presented in the form of illustrations, diagrams, tables and text blocks.

The study showed the use of multimedia technology in the classroom to the general psychology demonstrate the on-screen action proposed by the students in discussing issues and pre-designed teacher using multimedia tools is genuine interest in studying the topic lectures, updates are available at the students knowledge on the topic, helps best storing information, significantly increases the cognitive activity.

To determine the effectiveness of the use of multimedia technology in the lecture courses and their impact on enhancing the cognitive function, psycho-physiological state of students were allocated control group, the same amount of staff and student achievement. The first group of lectures were given with the use of multimedia technologies, the second - using traditional methods. Diagnosis was carried out in two groups before and after the lecture. Psychological research has included two diagnostics: psychometric and subjective evaluation. The aim was to investigate the psychometric diagnostic impact of multimedia technology on the level of cognitive functions as memory and attention.

The study showed that there were significant differences in changes in memory before and after the lectures on traditional technology and the application of multimedia technology. In particular, after the lecture with the use of multimedia technologies results in the methodology for assessing memory were higher in 88% of cases, while whereas after a lecture on traditional technology improvement manifested itself only in 36% of cases.

Thus, the use of multimedia support significantly improves the perception and comprehension of the issues the students, creates a more comfortable environment for the classroom work of students, teachers, and certainly makes them the most appropriate tool to address the methodological and technical problems arising in the study of the discipline "The general psychology".

3.4. Methodological scenarios for learning situations

Let us turn to the analysis procedures for the management of learning situations, examined the materials for specific projects (scenarios) of certain types of occupations (summaries problematic lectures, seminars, discussions) on various topics of the courses of "common", "age" and "educational" psychology. The choice of analyzing the situation problematic lectures and Heuristic conversation due to the fact that the design of these kinds of exercises, meets the most difficult yet, because of supply problems one-sidedly, in the context in which it is convenient for the teacher, but not universally.

Problem lecture or a seminar-discussion begins, not where the teacher simply points out the contradictions embodied in the logic of scientific research problem, and involves the audience in a discussion of the planned scheme, and where he was given the objective identified in the science of contradiction (trends, approaches, position), is drawn to the experience of the audience to identify, update, relate the approaches, attitudes, current students, with existing trends in science in the analysis of the problem. It should dissect two different design tactics problematic situation - the movement to the problem of subject content knowledge, and the subjective experience of the audience to include in the logic of scientific problem solving, where the latter tactic deliberately creates a new subject of cognitive activity.

Therefore, the most important point of concern educational situation serves the starting point of the upcoming dialogue, ie introduction to the problem. The function of the primary component of the training situation is to ensure consistency and convergence of dialogue, which creates "the possibility of the learning process itself as a joint cognitive activity." Different tactics introduction to the problem, ultimately, determine the greater or lesser ability to shape the skills to see the problem, problematize the phenomenon and the situation. The choice of tactics depends on the success of the formation of other components of the analysis and solution of problems in general - identifying and fixing potential and proposed approaches to the analysis and solution of problems identified typology of approaches to specify the problem, the choice of measures of the adequacy of the proposed solutions, etc.

3.5. Problem lecture and heuristic conversation in the course of general psychology

Heuristic conversation is that kind of problem lectures, which allows most fully to demonstrate various aspects of the process providing students of all structural components of the analysis and solution of the problem. Heuristic conversation - is a technique of designing a certain way of thinking by transformation of the individual points of view in a joint study of the problem.

In this case, the heuristic conversation requires from the teacher on the one hand improvisational skills, which are based on proficiency in various aspects and levels of decision problems, and the other - ways of building dialogue forms of interaction with the audience at all stages of the solution.

This raises the question of where a problem in the form of lectures heuristic discussion in the lecture course and not every lecture to be deployed outside the dialogue, often problematic monologichny lectures and teacher incorporates a "voice" by implication, not carrying them beyond monologiki. This conversation is needed for the creation of a special intellectual situation, special use case - reflections of students on general and their own understanding of a subject of study, one way or another, has already been achieved as a result of previous work. So often in fact heuristic conversation precedes problem lectures monologue in which the teacher introduces students to the problem, outlines possible approaches to its analysis on material factors and comparison of different theories, and introduces a number of conditions precedent, and its solution, thus creating a further problematization external dialogue.

We emphasize that the methodological meaning of the introduction of heuristic conversation is to achieve a specific didactic purpose, namely to turn the students to the new reflexive position in relation to its own methods of thinking skills in an academic subject. Hence, central to this form of lectures given to the organization of the feedback lecturer with the audience. It should maximize the mainstream positions and points of view, different approaches to understanding and solving problems. Only through this kind of information obtained in dialogue with the audience, the lecturer will be able to address the explicit and implicit assumptions of the students themselves and positions, and in dialogue with speakers of different positions to reach a comparison of approaches, will help realize the other opportunities solutions, to ensure "seizure" of the problem, which will pave the way for new ways to solve it.

3.6. Methodical development of the main occupations

Methodological development of a training lecture

I. Theme lecture. Rationale for choosing the topic.

1.   Determination of the place and importance of the topic in the whole course (context).

2.   The selection of bibliography on the subject (literature for teachers, books, recommended for students).

II. Forms of organization of the lecture.

1.   Audience (nature and level of preparedness of trainees).

2.   The purpose of the lecture (idea, the basic idea of lectures, bringing together all the substantive content).

3.   Tasks lectures, realizing the basic idea:

a) The composition and sequence of tasks;

b) the nature of the tasks: information, research, organize, problem;

c) the resources necessary for students to solve these problems;

d) emotional attitudes and relationships that are formed by the teacher trainees in dealing with tasks.

4.   The organizational form of lectures:

a) monological utterance;

b) a monologue based on audiovisual media;

c) a monologue with the elements of heuristic conversation;

d) heuristic conversation;

e) dialogue-discussion (two teachers, expressing opposing views on the problem under discussion).

5) Feedback - Mini (express) retain control of attention.

III. The content of lectures.

1.   Plan and outline the content of the lecture.

2.   Teaching tools and teaching techniques to ensure the integrity, regularity, consistency, accessibility, clarity, conclusiveness, and others (to provide the margin abstract).

IV. Holistic way of teaching in the lecture.

1) The forms of cooperation of teachers with students in the process of solving each of the sections of the content of the lecture (joint problem solving, role models, partnership).

2) linguistic form of expression (vocabulary, grammar, style).

3) Emotional and expressive means of communication with the teacher audience (gestures, facial expressions, pantomime, vocal mimicry - intonation, loudness, tempo, rhythm, pause).

Methodical development of seminars

I. Interest classes.

1) Rationale for the topic.

2) The definition places the theme of the course.

3) The purpose of training. Objectives: cognitive, educational, methodical.

4) References. Rationale for the selection of recommended books based on the level of reading, the complexity of the texts.

II. Form of the seminar.

1) Rationale for the selection of a seminar in connection with the nature of the audiences:

a) The question answering (survey);

b) detailed conversation on the basis of the plan;

c) reports to the mutual review;

d) discussion of essays written with the elements of the debate;

e) group discussion: directed, free;

f) training and role-playing game.

2) The program pre-orientation of students in the topic, objectives, facilities, operations, character classes in literature, the roles of the panelists, the requirements for reports, papers, form and nature of the discussion topics.

III. Plan and an outline of the classes.

1. Program content classes: the main sections of the theme, the main tasks of each section of the theme, fixing the basic contradictions in the course of solving the problem.

2. Synopsis of the contents of sections of the program. Selection of teaching methods that ensure the identification of contradictions, conclusiveness and validity of the considered viewpoints. Methods of group communication at different stages of training.

3. Summary of the discussion of the topic at seminars.

4. Stocktaking of seminars after the event.

Conclusion to Chapter 3.

The chapter found solutions for the organization of distance education and held their approbation by the example of "The general psychology", expressly declaring the following:

1. Analyzes educational technology, the specificity of which focuses on the direct use of distance learning.

2. Revealed methodological features of methods used to create multimedia courses.

3. Determined the hierarchical structure of multimedia layout of the course "The general psychology", testing which showed a twofold improvement in the rate − operational memory of students.

4. Constructed basic tactics of forming learning situations on the topics - "general", "age", "educational" psychology course "The general psychology ".

5. Detailed and methodical development of the course "The general psychology" on the main types of classes - educational lectures, seminars.

CHAPTER 4. SAFETY OF LIFE

4.1. Workplace organization, equipped with computer

Scientific and technological progress has made major changes in terms of production activity manual workers. Their work has become more intense, requiring a considerable amount of mental, emotional and physical energy. This required a comprehensive solution of problems of ergonomics, hygiene and the organization of labor, regulation of work and rest regimes.

Currently, computer technology is widely applied in all areas of human activity. When working with a computer person is exposed to a number of dangerous and harmful production factors: electromagnetic fields (frequency range: HF, VHF and UHF), infrared and ionizing radiation, noise and vibration, static electricity, etc. Working with a computer is characterized by great mental stress and neuro-emotional stress of operators, high-intensity visual work and a sufficiently large load on the muscles of hands when working with a computer keyboard. Of great importance is the rational design and layout work place, which is important for maintaining optimal working posture of the human operator.

In the process of working with computers is necessary to observe the correct mode of work and rest. Otherwise, the staff has been a significant strain of the visual apparatus with the advent of complaints dissatisfaction, headaches, irritability, sleep disturbance, fatigue and pain in his eyes, in the back, in neck and hands.

Of great importance is the nature of work. In particular, the organization of the workplace programmer should be subject to the following basic conditions: the optimal placement of equipment included in the work place and have enough working space to perform all the necessary movements and displacements.

The main elements of the workplace are a programmer table and an armchair. The main working assumption is sitting position.

Working posture while sitting is minimal fatigue programmer. Rational planning of the workplace provides a clear order and constancy of placing items of work and documentation. What is required to perform work more often located within easy reach of the working space (Figure. 4.1.).
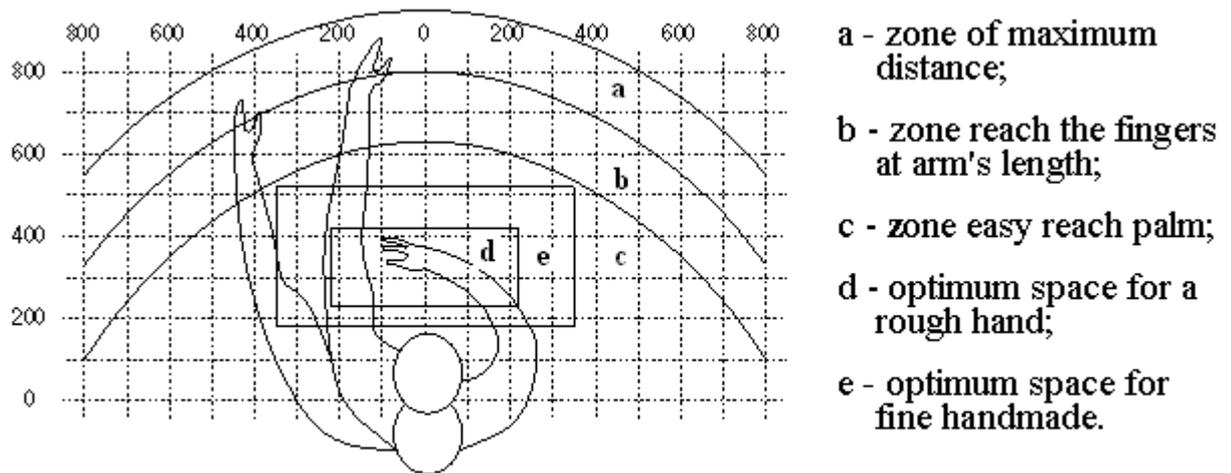
Fig. 4.1 The reach of hands in a horizontal plane

a - zone of maximum distance;

b - zone reach the fingers at arm's length;

c - zone easy reach palm;

d - optimum space for a rough hand;

e - optimum space for fine handmade.

When the equipment of the workplace (Figure 4.2), you need to install the monitor on a special table so that the rear panel faces the wall (as near it registered the highest level of the electric field), the screen should not be placed in front of windows or other direct light sources, giving the glare on the screen.

Fig. 4.2. Recommended position while working at a computer

Desk, where you install the monitor should be of sufficient length to the distance to the screen is 60-70 (not closer than 50) cm, and at the same time, it was possible to work with the keyboard in the vicinity of the user (30-40 cm).

The design of the working furniture (tables, chairs, stools) must be capable of self-regulation, respectively, increased work and create a comfortable position.

Frequently used items should be kept working in the optimal work zone, at the same distance from the eye working. On the surface of the desktop you want the base to the

documents, whose distance from your eyes shall be equivalent to the distance from the eyes to the keyboard. Office chair should have armrests. In the workplace necessary to provide a footrest.

In order to eliminate glare on the screen, the monitor should be installed perpendicular to the table, and the user should look at the screen a few top-down (10 ° from the horizontal line) (Fig. 4.2, 4.3).

Terms of light in the room play a major role in the preservation of visual comfort. On the one hand, nothing should interfere with the perception of information from the screen, on the other - the user should be good to see the keyboard, paper text, which is used, as well as the general situation and the people with which we communicate at work.


Fig.4.3. Comfortable workplace with "L" shaped table

General illumination in the room should not be too big but not too small, it should be in the range of 300-500 lux. If the room light, the windows should have curtains or blinds. Workstations connected displays is desirable not to have directly from the windows. In all cases the monitor screen should be oriented so that it gave no glare - namely, at an angle to the window, close to the line (Fig. 4.4., 4.5., 4.6.).

Artificial lighting should not be too bright. But apart from the common lamp, illuminating the room needed a bright spot (not less than 60 watts) lamp with a good dense shade that illuminates only the text you are working with. It should have the possibility of orientation in different directions and be equipped with a device to regulate the brightness. Incandescent preferably fluorescent, as recent yield pulsed light, in certain circumstances reinforces flickering screen display.
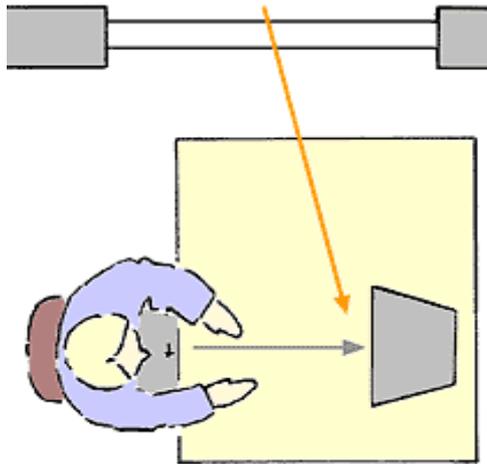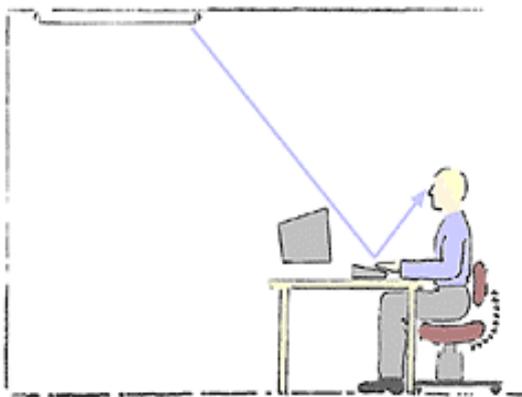
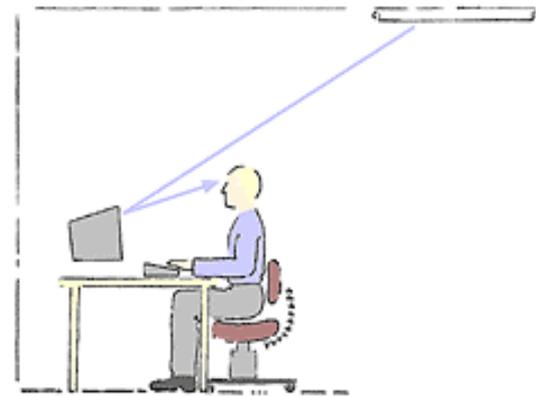A) Line of sight is parallel to the window (recommended)
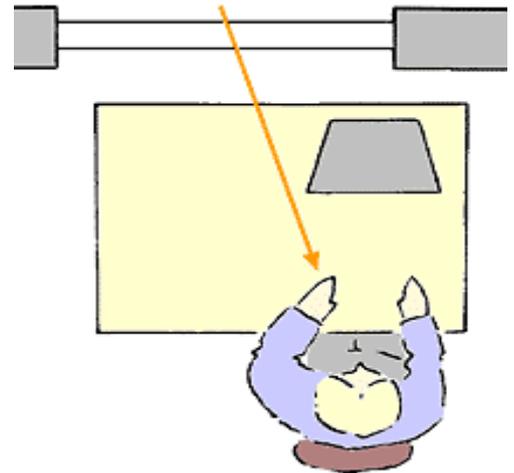
B) A bright light in the field of view (not recommended)

Fig. 4.4. Location of the monitor on windows

A) Reflection of light from the lamp surface of the table and keyboard (not recommended)

B) Glare from the lights on the monitor screen (not recommended)

Fig. 4.5. Location of the source of artificial illumination on the monitor

Fig. 4.6. Proper positioning of the monitor on the wall and the light source

Before working with the monitor must be installed with the most comfortable handles contrast and brightness on the screen. They are selected individually, as too low contrast and high brightness can lead to rapid fatigue.

In the selection of the light regime in the workplace user display should take into account the fact that people after 40 years of age-related changes occur in the visual system (narrowing of the pupil, yellowing of the lens, reducing the visual activity and contrast sensitivity of the retina). All this requires an increase in the brightness of the screen and additional illumination of the workplace (paper copy). In young persons with visual-intensive work of the greatest load is accommodative system of the eye, which during operation is in constant tension. This can lead to unwanted events, the occurrence of the accommodative system in the eye and ultimately to the emergence and growth of short-sightedness. To avoid this, work with the screen of the monitor should be at a distance of not less than 60-70 cm, with the voltage of accommodation is minimal.

In adults with myopia who constantly wear glasses, other glasses for the computer required only if the user is in their glasses with difficulty to read newspaper print at a distance of 60-70 cm (to screen) and 30-33 cm (up to print text) from the eye. In the case with the same lenses, reading from both distances is not possible, prescribe bifocal glasses.

4.2. Emergencies. Protecting the enterprise in emergency and disaster

4.2.1. The concept of an emergency. Stages of emergency

It is known that any activity is potentially dangerous, and are themselves risk permanent character (permanent, continuously ongoing, from the Latin permaneo - remain, continue).

The potential danger - a danger hidden, uncertain in time and space. Realized the potential danger of a cause and if the fallout will be significant, then this event is classified as an emergency.

Emergency (disaster) - this is the situation in a certain area, created by the accident, natural hazard, natural or other disasters that may cause or have caused human casualties, damage to human health or the environment, considerable material losses and violation of conditions of people's life.

Regardless of the causes of the disaster, in their development can distinguish five main stages:

- Arising - the appearance of conditions or prerequisites for emergencies (natural strengthening of activity, the accumulation of strain, defects, etc.)

- At this point, the human factor is important because statistics show that 70% of man-made accidents and disasters is due to human error.

- Culmination - the stage of energy release or the substance. At this stage, the overwhelming negative impact on human and environmental hazards and injuries emergencies.

- Attenuation - localization and liquidation of emergency its direct and indirect effects. Duration of this stage is different, there may be days, months, years and decades.

- The period of recovery.

4.2.2. The problems solved in emergency. Classification of emergencies

All emergencies can be classified into three basic principles - the scale of distribution, rate of development and the nature of origin.

In the classification of disaster on the scale of distribution (Figure 4.7). Should consider not only the size of the territory, subjected the impact of emergency situations, but also its possible indirect effects. These include severe violations of institutional, economic, social and other relevant links operating over large distances. Moreover, taking into account the gravity of the consequences, which in a small area of disaster can be immense and tragic.

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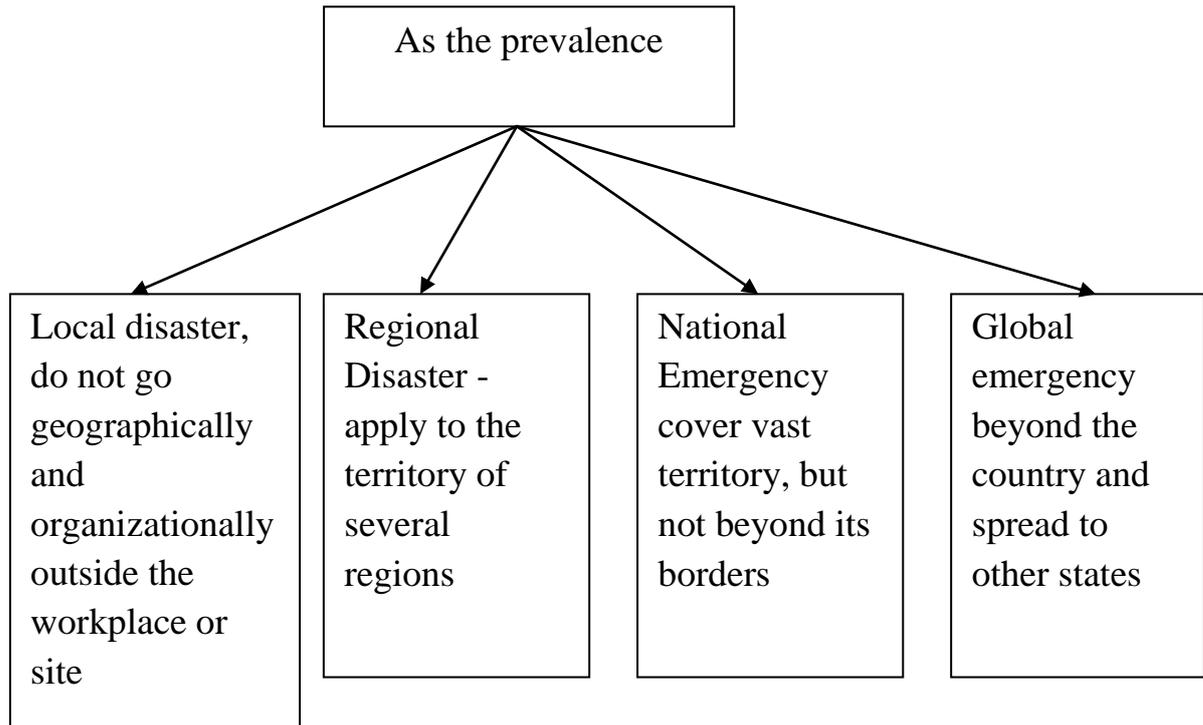| Local disaster, do not go geographically and organizationally outside the workplace or site	Regional Disaster - apply to the territory of several regions	National Emergency cover vast territory, but not beyond its borders	Global emergency beyond the country and spread to other states

Fig. 4.7. Classification of emergency on the scale of distribution

Each type of disaster has its own characteristic velocity of propagation of the danger, which is an important component of the intensity of occurrence of emergency events and characterizing the degree of suddenness of the impact of damaging factors. With this perspective, disaster can be categorized by rate of development (Fig.4.8.).

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┌─────────────────────────────┐
│        The pace of          │
│        development          │
└─────────────────────────────┘
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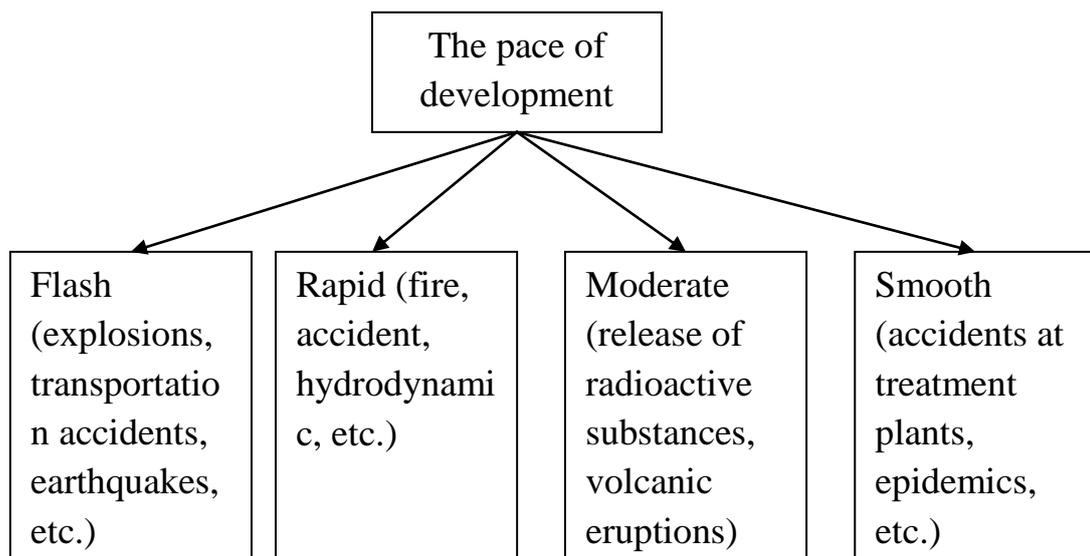| Flash (explosions, transportation accidents, earthquakes, etc.)	Rapid (fire, accident, hydrodynamic, etc.)	Moderate (release of radioactive substances, volcanic eruptions)	Smooth (accidents at treatment plants, epidemics, etc.)

Fig. 4.8. Classification of Emergencies in the rate of development

Each disaster has its reasons, in this context, they can be classified by origin (Fig.4.9.).
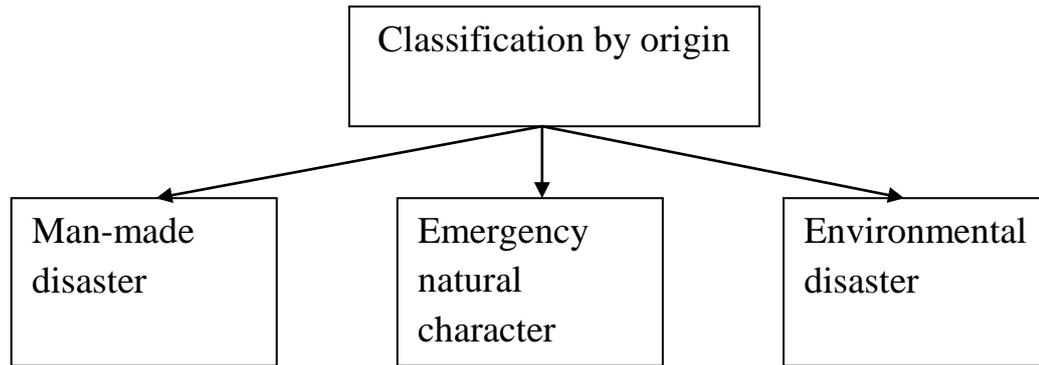
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                    ┌─────────────────────────┐
                    │  Classification by origin │
                    └─────────────────────────┘
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| Man-made disaster | Emergency natural character | Environmental disaster |

Fig. 4.9. Classification of emergency descent

4.2.3. Planning for life safety in emergency

In emergency situations of war and subject to the protection of all people, but defended his individual groups differentially. The main ways to protect the population in emergency situations in modern conditions are:

- shelters in the defenses, in the simplest shelters in the area;
- dispersal and evacuation of people from major cities in the suburban area;
- timely and skillful use of personal protective equipment.

To shelter the people in advance in the event of disaster built defenses. The protective structures are divided:

- by appoint (to the public or for the redeployment of the administration);
- by location (built-in, freestanding, in mines, subways, etc.);
- time construction (being built in advance of the special period);
- in nature (refuge or shelter).

Shelter is a sealed type of protective structure that protects it sheltered people from all the nuclear explosion, toxic substances, bacterial agents, high temperatures and noxious fumes.

Shelters are equipped with all life support systems. Air supply system includes air inlets, dust filters and filter-sinks, fans and protective devices.

Removers air is carried out:

- mode of pure ventilation when outside air is cleared only by dust breathability 8-13 m^3 per person per hour;
- filtration in the regime when the air is further passed through a filter-absorbers for the purification of chemical agents and bacterial agents with the breathability of at least 2 m^3 per person per hour.

Regeneration of the air by means of appropriate ammunition.The purified air is blown by fans on the air ducts in the compartments of asylum.

Water system provides people with water for drinking and hygiene. It is carried on the outside water supply network.

4.2.4. Liquidation of consequences of emergencies

Emergency response includes an incident in the zone and in adjacent parts of the forces and resources of organizations for emergency situations of all kinds of intelligence and emergency operations, as well as the organization of livelihood of the affected population and the personnel of these forces.

Emergency response is completed at the end of the rescue and other urgent works.

Rescue and other urgent work in the lesions include:

- exploration of the lesion, which produces real data about the current situation;
- containment and fire fighting, rescue people from burning buildings;
- investigation and autopsy trapped defense, search and retrieval of the rubble of the victims;
- providing medical assistance to victims, evacuation of affected health facilities, evacuation of people from areas of possible catastrophic effects (flooding, radiation and other contamination);
- sanitization of people, disinfection of transport, technical systems, buildings and industrial facilities;
- immediate emergency and reconstruction work in industrial settings.

Exploration in the shortest possible time should determine the nature and limits of destruction and fire, the extent of radioactive and other kind of infection in different parts of the fire, the presence of infected people and their condition, possible ways of input rescue teams and medical evacuations. According to intelligence determine the amount of work, refine the methods of conducting search and rescue and emergency operations, develop a plan of liquidation of consequences of emergency events.

Plans to eliminate the consequences outlines a specific list of urgent work, determine their sequence. Given the capacity and timing of the rescue forces and determine the means for their implementation. In the first place in the plan should include efforts aimed at ending the impact of external factors on the object (if possible) the localization of the lesion, staging means to prevent the spread of risk on the territory of the object.

As the rescue forces using trained rescue teams, set up in advance, as well as the newly formed units of the number of workers of the industrial facility (the civil defense facility). Rescue units may be subordinated to the management of the facility or the district administration, the city area.

As the technical means of object used as equipment (bulldozers, excavators with interchangeable equipment, dump trucks, graders, motor and trailer rollers, pneumatic tools, etc.) and special equipment in the possession of rescue units (special conveyor machines, grubber-gatherers, hand rescue tools, controls and life support).

Conclusion to Chapter 4.

Application of computer technology in the educational process is impossible without human contact and technology. Therefore, considered in this chapter, security can draw the following conclusions:

1. In any educational process, based on computer and telecommunication technologies, must include elements of knowledge and skills on safety.

2. All participants in the learning process should be aware that the flight of "student - computer – teacher" is included as part of a broader system "man – machine".

3. In accordance with the fundamentals of ergonomics, we should distinguish, for some indicators of person than car, and for some indicators of the machine than man.

4. At the educational managers are responsible for:

- The organization of comfortable, safe working network sites to users with computers;

- Maintaining the given regime of operation of the system;

- Select the safe structure and technologies to network components with minimal impact of hazardous and harmful factors;

- Periodic monitoring and certification of equipment for compliance with its requirements of standards and safety standards;

- Regularity of instruction and examination of knowledge and skills to work in the system "man – machine".

CONCLUSION

Analysis of existing approaches on the development of global multimedia courses, with the ability to integrate the various learning processes, and particularly with distance learning faces the need to address the many conflicting objectives. The solution of these problems is seen not only in terms of compromise, but also in terms of the optimal solution that would be focused on the possible use of innovations and changes in the educational process. Therefore, in this paper we propose one approach to solve this problem by the example of "The general psychology" on the platform LMS system - Moodle. Summarizing the findings of the study can conclude that the main results of the final qualifying work are as follows:

1. As a result of qualitative comparison and analysis of existing learning management systems provide a rationale and proposed system Moodle, for the integration of multimedia course in the learning process.

2. The principles of distance learning platform Moodle, allowing to generate its own system of learning management, with the desired quality.

3. Revealed methodological features of methods used to create multimedia courses focused on the direct use of distance learning.

4. Determined the hierarchical structure of multimedia layout of the course "The general psychology", testing which showed more than twofold improvement in the rate – operational memory of students.

5. Designed basic tactics of forming learning situations on the topics - "general", "age", "educational" psychology course " The general psychology ".

6. Detailed and methodical development of the course "The general psychology" on the main types of classes - educational lectures, seminars.

7. We consider the chain linking the issues of the human factor in this system, its safe operation taking into account the provisions of ergonomics.

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