

Multimedia and Its Role in The Modern World

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Abstract: Multimedia are multiple information environments-interfaces that provide input/output of information of different types to the computer, computer creation, processing and display of information of different levels and structures for perception by different human senses at the same time.

Multimedia is a set of information media-channels, each of which has its own specific form corresponding to its level and purpose.

The main environments are ordered in ascending order, as follows:

- binary environments that include processor instructions, program and data binaries
- contact environment, which is a tactile, strain, electric, capacitive and other touch environment, used to input mechanical code and other spatial-dependent information;
- text environments, which are text data for people, program texts for interpreters, other text information;
- audio streams, which are sound files, series of digitized sound, sets of musical audio data and other types of digital sound;
- graphical environments, which are files of drawings, photographs and other two-dimensional graphical information;
- video streams, which are video files, series of dynamic graphic information;
- virtual reality, which is an interactive 3D video stream.

Key words: definition, multimedia, educational multimedia, term, interactive, teaching, method, abilities, silent reading, intonation, accent, imitation.

I. INTRODUCTION.

It should be noted that the rational use of modern information and communication technologies in the process of further development of the educational system will be an important factor in further improving the quality of Education. The introduction of modern information technologies into the educational process creates an opportunity to provide economic benefits, as well as to widely apply new educational methods in education. Specialized audiences are becoming increasingly popular in classrooms equipped with computers, television and video recording. Even it is being interpreted as a separate video. In the course of the lesson, Multimedia is the main role in the use of Information Technology. Multimedia is an embodiment of the delivery of educational materials to students, students on the basis of software and technical means of Informatics on the basis of audio, video, photo, text, graphics, animation tables. Multimedia is developed to transmit sound, data and images over regional, regional and global networks.

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Multimedia (multiple media, eng.) is the interaction of visual and audio information under the control of interactive software using modern hardware and software, they combine text, sound, graphics, photos, videos in one digital representation.

For example, a single container object can contain text, audio, graphics, and video information, and possibly a way to interact with it.

The term multimedia is also often used to refer to media that can store large amounts of data and provide fairly quick access to them (the first media of this type were CD — compact disk). In this case, the term multimedia means that the computer can use such media and provide information to the user through all possible types of data, such as audio, video, animation, image and others in addition to traditional ways of providing information, such as text. The definition given above is actually a user definition, that is, a General simplified definition of multimedia for the understanding of the computer user. The scientific and technical definition of multimedia is somewhat different.

Use of multimedia provides ease of perception of information by the person as the person has means and ways of processing of information essentially different from the computer, having the form of perception convenient for the person.

If a computer is characterized by binary-discrete forms of information with electrical transmission of information signals (1/0), then for a person - multimodal-analog forms of predominantly non-electric nature (light, sound, pressure, etc.).)

Without the creation of such environments, human perception of computer information is extremely difficult, and even more difficult is the transfer of multimodal information from one person to another through computer means.

Therefore, the technology and technology of multimedia includes a wide range of different interfaces, as input interfaces (sensors-video camera, microphone, touch screen, etc., converters-ADC, special processors to convert external information) and output interfaces (displays, sound sources, etc.).

Multimedia tools can include the following:

Text materials. The textual lecture part of the organization of theoretical classes occupies the most significant place. As a rule, all materials included in the curriculum are created in text form, after which, in addition to them, audio and video materials are developed. The presentation of the instructional material in this pseudonym provides for the elimination of a number of shortcomings of traditional lectures (copying, recording the necessary places, excessive time spent by the speaker to repeat it over and over again). The necessary accents in the text of the lecture are given by color, shape of letters and illustrations, which ensures the transmission of emotions.

Audio materials. This type of material is distributed through two modes. Audio materials in On-line mode are distributed using communication technologies. Audio materials in Off-line mode are recorded in cassettes, audiodisc, files the case is distributed through network technologies. Listening to lectures by educators is also done through audio devices that are equally convenient and compact.

Video materials are transmitted in synchronous and asynchronous order. Simultaneous, direct transmission of video materials ensures direct communication of educator and educator, embodies all positive aspects inherent in traditional lectures, ensures that educators and educators see and hear each other in real time.

When transferring training materials in asynchronous order, video materials are recorded and distributed on video cassettes and discs. The composition of such video materials includes lectures, educational scientific-popular video materials on the subject, video recordings of meetings with mature specialists of this field. The use of such video materials can optionally be performed anywhere and anytime, over and over again.

Animation lectures are delivered to educators through instructional computer programs that have an interactive structure. Animation lectures are formed using multimedia technology. In this each educator chooses the training, the pace of mastering and the method of learning in the animation lecture, proceeding from its psychophysiological nature.

Practical training is based on simulators, virtual reality-based teaching tools, expert teaching systems, embodying the modern achievements of computer technology. In the distance learning system, simulators provide for the acquisition of intelligence and on the basis of imitation of labor operations. Virtual reality allows you to accelerate the processes of qualification on the basis of the principles of idealization of the environment. Expert training systems are aimed at identifying the level of knowledge of the educators and organizing the development processes on the basis of knowledge and data bank, which can perform the function of a mature specialist of the relevant field of activity.

Classification multimedia. Multimedia can be divided into linear (no feedback) and interactive environments.

Cinema can be an analogue of the linear way of representation. The person viewing this document cannot influence its conclusion in any way.

Interactive (non-linear) way of presenting information allows a person, programs, networks to participate in the output of information, interacting in any way with the means of displaying multimedia data. The involvement of two or more parties in this process is called "interactivity". This method of human-computer interaction is most fully represented in the categories of computer games. The interactive way of presenting multimedia data is sometimes referred to as "hypermedia".

As an example of linear and interactive ways of presenting information, we can consider such a situation as a presentation. If the presentation was recorded on tape or in a video file, and is shown to the audience, then viewing this presentation have no opportunity to influence its course. In the case of a live presentation, the audience has the opportunity to ask the speaker questions and interact with him in other ways, which allows the speaker to depart from the topic of the presentation, for example, explaining some of the terms or highlighting in more detail the controversial parts of the report. Thus, a live presentation can be presented as an interactive (non-linear) way of presenting information.

Local and network media capabilities. Multimedia presentations can be made by a person on stage, shown through a projector, or on another local playback device. Broadcast presentation can be both "live" and pre-recorded. Broadcasting or recording can be based on analog or electronic technologies of storage and transmission of information. It is worth noting that online media can be either downloaded to the user's computer and played in any way, or played directly from the Internet using streaming technologies. Media played using streaming technologies can be both "live " and provided on demand.

Various formats of multimedia data can be used to simplify the perception of information by the consumer. For example, to provide information not only in text form, but also to illustrate it with audio data or a video clip. In the same way, contemporary art can present everyday, everyday things in a new way.

Various forms of providing information make it possible for the consumer to interact with the information. Online multimedia is increasingly becoming object-oriented, allowing the consumer to work on information without possessing specific knowledge. For example, to post a video on YouTube or Yandex. Video, the user does not need knowledge of video editing, encoding and compression of information, knowledge of the device web-servers. The user simply selects a local file and thousands of other users of the video service have the opportunity to view the new video.

A multimedia Internet resource is an Internet resource where basic information is presented in the form of multimedia. This is a modern and very convenient mechanism that does not replace the classical functions, but complements and expands the range of services and news for visitors.

Multimedia Internet resources are characterized by the following:

- they can contain different types of information (not only text, but also sound, graphics, animation, video, etc.);
- have a high degree of visibility of materials;
- support different file types: text, graphics, audio and video;
- can be used to promote creative works in various arts;

- multimedia due to its visibility reduces the level of intellectual and psychological barrier between the user and the information technology process.

This type of resource makes it possible to quickly report on the events that are organized, to demonstrate an overview of the field, institution or creative team, to establish feedback with its visitors, to disclose goals and materials using modern mechanisms of information presentation and to promote recognition of the presented object through the Internet.

Multimedia has applications in a variety of fields, including advertising, the arts, education, the entertainment industry, technology, medicine, mathematics, business, research and space-time applications, and other human information processes.

Education. In education, multimedia is used to create computer-based training courses and reference books such as encyclopedias and compilations. A training course allows the user to go through a series of presentations, text about a particular topic, and associated illustrations in various information formats. Entertainment education (edutainment is a term used in the United States) that combines education and entertainment, especially multimedia entertainment. Learning theory has evolved significantly over the past decade with the advent of multimedia. There are several areas of research, such as the theory of cognitive load, multimedia training and others.

The opportunities for training and education are almost endless. The idea of media convergence is also becoming one of the most important factors in education, especially in higher education. Defined as individual technologies such as voice (and telephony functions), databases (and derived applications), video technologies that now share resources and interact with each other, comprehensively creating new responsiveness, media convergence is a rapidly changing curriculum of disciplines taught in universities around the world. Newspaper companies are also trying to embrace the new phenomenon by incorporating its practices into their work. Engineering software Engineers may use multimedia in computer simulations for anything from entertainment to training such as military or industrial training. Multimedia for software interfaces are often done as a collaboration between creative professionals and software engineers. More user-friendly software is created, eliminating the barrier between the user and the program. Multimedia tools are beginning to be actively used for the development of identification systems in various fields: banking, trade, security, medical, research Industry in the industrial sector, multimedia is used as a way of presenting information to shareholders, management and colleagues. Multimedia is also useful for providing employee training, advertising and selling products worldwide through virtually unlimited web-based technologies. Computer graphics combined with tomography technology allows you to discover new mineral deposits, to explore the internal state of technical objects, inaccessible in other ways. In mathematical and scientific research, multimedia is mainly used for modeling and simulation. For example: a scientist can look at a molecular model of a substance and manipulate it to produce another substance. Exemplary research can be found in journals such as the Journal of Multimedia.

Medicine. Doctors can also get trained by performing virtual surgeries or simulations of the human body affected by diseases spread by viruses and bacteria, thus trying to develop techniques to prevent it. Graphic media, combined with tomographic technology can effectively study the human body, its organs.

Multimedia technologies "capture" the world. Computer games, 3D-formats, intelligent systems-without it is difficult to imagine our lives. But multimedia is not only entertainment, it is also convenience, functionality, efficiency and business security.

Multimedia any system that has an impact on several channels: video, audio, text, and often gives the opportunity for interactive interaction, for example, in the process of playing or learning. A more advanced level of multimedia is considered to be intelligent systems that not only broadcast information, but also can centrally manage it. For example, such a system can be configured to turn on a certain time before the event. At the same time, it checks for errors and "knows" the playback sequence. Such systems can be synchronized with the schedule of events in the mail service.

You can't do without smart media when designing a security system. "Smart multimedia" is able to "cover" the entire space, provide limited access to it, video surveillance, fire sensors and alerts, that is, it works on several fronts. So, the main task of intellectual media systems is to make our lives easier, to make the necessary processes more functional, to optimize them, thereby reducing the time and financial costs. All parts of the system are interconnected and are part of a single information space. Management of the system is often carried out from one point, by one person, intuitively understandable and accessible. Intelligent systems can be used in almost any business area.

Characteristics of multimedia technologies are the basis for the development of information direction. Today it is one of the most promising, popular, continuously developing areas of computer science. This term refers to the creation of a product that, through the introduction and use of new technologies, a set of images, texts and data, accompanied by sound, video, animation and other visual effects, informs the audience.

Multimedia technologies also include an interactive interface and other control mechanisms. In order to better understand and understand what types of multimedia technologies exist, it is necessary to identify and highlight the main directions of their use. It's really important.

Types of multimedia technologies. The use of multimedia technologies is divided into:

- General or individual use;
- for professionals or for the average consumer;
- for interactive and non-interactive applications;
- to use information locally or at a distance.

It is necessary to dwell on each of these points.

1. Technologies of General or individual use. Concerning technologies of General use it is possible to allocate the following types: interactive terminals, some technologies of presentations by means of the computer, those that expand on networks. In turn, the technologies of individual use include multimedia workstations, classrooms, multimedia computers for maintaining various documents. The main places of their application include public areas, as well as homes and workplaces of consumers.

2. Technologies for professionals and ordinary consumers. This category includes multimedia work areas (computer graphics, projects, etc.). This may also include systems used by non-experts. They are usually used in public places, it is a system with built-in microprocessors, which are designed to function in the home. These are game consoles, CD-I, Play Station.

3. The use of information in place and at distances. The rapid development of multimedia at the initial stage can be explained by the rapid development of desktop computers, which everyone has at home today. Then it became possible to record and store information on specially designed CDs. Modernity dictates its own rules. Today's rapid development of medium-and high-bandwidth digital networks suggests the rapid development of remote multimedia technologies.

4. Application of interactive and non-interactive technologies. Coming to this category, it should be emphasized that a large number of experts do not agree that non-interactive systems can be called multimedia. But it is important to understand that their number can significantly increase. Thus, non-interactive multimedia are used to attract attention and entertain the audience through presentations and exhibitions.

It is especially important to understand the role of multimedia technologies. This should be discussed in more detail.

The importance and role of multimedia technologies

The importance of multimedia today is quite large. One of the main areas where these technologies have shown themselves, can be called educational. They are now very actively implemented and successfully used for training. New effective and efficient means of presenting information and communicating it to students are being developed. So,

one of the most common and familiar methods of implementation in the educational process today can be called a presentation.

During the course of the large-scale screens offered information for study. Multimedia technology such as presentation can take place at different stages of training:

- at the time of updating the reference knowledge;
- during the frontal survey, the text of the question is displayed on the screen, and after a reliable answer by students, the transition to the hyperlink to the slide with the visualization of the answer takes place;
- under the form of frame supports, the stages of solving problems are displayed, from which you can quickly go to the slide with new initial conditions or a picture, and then continue the solution.

This approach contributes to a significant saving of time, which is given to the lesson. The teacher has the opportunity to assess the level of knowledge of more students. This is just one example. The role of multimedia is quite large in all spheres of life in the modern world.

Main objectives of multimedia:

The purpose of multimedia technologies may vary depending on the specific application. Typically, this:

- promotional and entertainment;
- educational, scientific and educational;
- research, etc.

Considering each of them in more detail, it should be said that, for example, the popularization goal is one of the main ones. Advertising actively uses multimedia to attract potential buyers and customers.

The scientific and educational aspiration is actively applied in the following directions:

- selection through rigorous analysis of products on the market that can be applied within the relevant framework;
- development of multimedia product by teachers, based on their goals and objectives in the educational process.

Speaking of research purposes, the use of multimedia technologies to create all sorts of electronic archives immediately comes to mind.

One way or another, but the features of multimedia technologies lie in their ubiquity and breadth of application.

Application, functions and tasks of multimedia technologies

It is noteworthy that the functions of multimedia technology perform, based on the scope of their application.

Speaking about the main, it should be said that in the educational sphere, as mentioned earlier, multimedia performs the function of an educational nature. Technologies are used to create computer-based training courses. In the industrial sector are widely used as a presentation of data for persons in managerial positions.

Value for medicine is especially great. Doctors today have a unique opportunity to undergo quality training through virtual operations. SOFTWARE developers use multimedia in computer simulations of anything.

Starting from the fields of application and functions of these technologies, the formulation of tasks is obvious. Each industry has its own goals and objectives, the achievement of which through multimedia allows you to improve.

Thus, the tasks of multimedia technologies in the educational sphere are based on improving the efficiency of the learning process. In advertising, the main task is to achieve the goals, convey information to the audience and promote the goods or services in this way.

Learn more about media technology. Media technologies are divided into two classes. Based on interaction and their application.

The first category will correctly include the means of synchronous, asynchronous interaction, online mode.

The second category includes a variety of virtual objects, real video, audio, animation graphics, etc.

To create and implement such technologies will require a PC, the appropriate software, as well as tools for designing multimedia projectors for display on large screens.

In order to get an image as well as sound, you need to connect a multimedia projector to your computer.

Multimedia technologies at the exhibition. All the above information is just the basics of multimedia technologies. In order to assess the scale of development of this direction, you should definitely visit the specialized exhibition of international level "Advertising", which will be held in Expocentre Fairgrounds. This is an event that is eagerly awaited by specialists in various industries, seeking to join the event, known all over the world.

Participation in the exhibition today is a real chance to advance and expand its influence in the market, consolidate its position, and for someone to confidently stand on its feet, with the support of investors.

Today they are actively used in all countries of Europe and the United States, gradually conquering Russia. Experts believe that multimedia is the future. But in this case, we can say that the future has already come. Multimedia technology uses hardware and software. Hardware includes analog and digital signal converters, video processors, decoders, sound and video cards. That is, all devices for sound recording, playback, transmission and processing of sound and image (including virtual reality - glasses, binoculars, VR-helmets and gloves, 3D-panels). Software tools are what help you develop multimedia applications. That is a program for working with graphics and animation, including 3D animation, sound processing, video editing, etc. Types of intelligent media systems Types of intelligent media systems to date, pretty much. Let's consider in more detail what implementation options have different systems and what tasks they will help to solve. Audio systems Are widely used - from conference rooms and meeting rooms to train stations and stadiums. It is impossible to imagine theatrical performances, concerts and lectures without them. Audio systems are needed to quickly alert people in case of danger or to convey important information, so they are also installed in offices, shopping centers, schools and other institutions.

The main tasks of audio systems: transmission and amplification of sound without distortion, sound adjustment; background and concert sound; broadcast audio, microphone and Congress systems; notification in case of emergency. Displays and projectors, led facades and screens, video walls and many other visualization tools perform two main functions: video broadcasting (including real-time) and video surveillance. That is why they are often used:

- during events, presentations, concerts, conferences to display information on the screen (corporate information, output schedules);
- in shopping centers, airports, train stations, on the street - for advertising and reporting important information; in offices, enterprises, all major facilities and crowded places (including elections) - to monitor and record what is happening;
- in hotels, hotels to create a hotel television and IPTV system;
- at exhibitions and large exhibition complexes as interactive displays, stands and maps to demonstrate the design project of the future object. Just a hand and a screen (wall, interactive table, scoreboard) to see the information of interest. More advanced solutions allow you to control in three-dimensional space even without touching the screen.

Lighting systems are not just screwed bulbs, it is an automated control of artificial and natural light, architectural, stage and stage lighting, as well as the ability to create different light intensity in different areas. For example, perimeter, Banquet, concert lighting, lighting; support activities, creating the desired effects; emergency lighting and notification in case of emergency; registration of premises, creation of the necessary atmosphere and a situation. Thus, lighting systems are needed in concert halls, conference halls, exhibition complexes, museums, offices, banks and public institutions and in other public areas, such as halls and hotel rooms.

Video conferencing (VC) allows people to communicate in real time, located at a considerable distance from each other. This is much more effective than talking on the phone, because you can see each other, and secondly, participate in a collective conversation. In the current conditions, HQs becomes an alternative to face-to-face meetings, excluding the influence of such factors as traffic jams, busy work schedule of participants, territorial remoteness, travel costs. This system is useful: in the work of companies that have an extensive network of branches. Employees from other

cities can participate in the meeting. For negotiations with clients from different countries. In distance learning. In telemedicine. In the media for the transmission of information from the scene, etc. Video conferencing is more cost-effective. Travel expenses are reduced, enterprise management becomes more efficient, managers' time is saved. The cost of a minute of video conferencing is comparable to the cost of mobile communication, but its coverage and efficiency is much higher. Interactive (centralized) control systems they allow you to monitor the process in real time, here and now and from a single point. Enable system-wide administration and monitoring. In this case, interactive management integrates all systems at once and allows you to configure them centrally. Thus, they can work remotely, which will reduce staff costs. As a rule, one specialist will be enough. Here are just a few examples of the use of interactive management: integrated security systems. They themselves monitor the reaction of all sensors, controlling in many directions at once (access, video surveillance, fire alarm, etc.). Events, providing light, sound, image, special effects.

Organization of work on schedules and meetings from the mail program. Creation of logistics chains, accounting and analysis of business processes, reporting systems, information collection. All this is applicable both in large enterprises and, for example, in health clubs, where access to gyms, locker storage, preservation of information about the training program and the results, given the number of visitors, etc. can also be carried out by means of interactive control. Electronic queue with this technology in one way or another faced each of us. It allows automated queue management in banking and public institutions, polyclinics and medical centers. In addition to the organization of the process, this system also allows you to generate statistics and reports on services. Virtual and augmented reality in the created virtual reality, you can, for example, evaluate the design project, see different options for decoration and layout. Thus, this system can be successfully used in the design of buildings, the development of interior design, as well as in gaming and entertainment spaces. To create virtual and augmented reality, 3D rooms and video clubs, holographic images are used: additional light, sound and other effects significantly change the perception of information, strengthening and supporting each other. Multimedia systems have long been an integral part of the work of offices, banks, industrial enterprises, large warehouses, medical institutions, shopping centers, theaters and concert halls. For their use to be really effective, they must be provided for in the project of the electrician of the object or room. Today, not everyone understands the need for this and often turn to specialists already at the stage of finishing. As a result, it is necessary to spend additional funds on alteration and modernization.

II. CONCLUSION

As stated in the law "On education" and in the "National program of training of personnel", the changes taking place in the educational system of socio – economic relations in our country, an important task is set before each teacher of science. These tasks are expressed in a variety of science programs, curricula, textbooks, as well as in the methodological system, which are specific to education.

In the correct understanding and understanding of the essence of each Science, the law of development, it is most important to determine the processes, the content of concepts that determine the content of this science. The use of modern pedagogical technologies in teaching foreign languages to the young people gives good results in achieving the intended goal. In this regard, it is planned to create multimedia electronic hands-on devices developed on the basis of pedagogical technologies and information technologies.

The multimedia electronic guide to the science of foreign languages, first of all, provides a rich scientific knowledge, as well as a wide range of opportunities for the formation of a complete picture in young people about some delicate concepts related to the content of the subject in contrast to other methods of application in English science. Also, the use of multimedia tools in the course process will help to strengthen the minds and minds of students, to cultivate their creative abilities, to increase interest in the lesson, to develop their independent mind, to facilitate the explanation and understanding of the lesson, to give them a deep and clear picture of their relationship to life.

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