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USE OF MULTIMEDIA TECHNOLOGIES IN SUBJECT AND PRACTICAL LEARNING

Abstract: Experience of application of multimedia in learning with use of distance educational technologies is presented in article. Multimedia systems can help a teacher to diversify and visualize both the theoretical and practical components of the lesson while achieving the desired learning outcomes at different levels of education.
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Introduction

Scope of multimedia technologies is various: industrial production, scientific research, equipment, business, management, medicine, art, etc. One of dynamically developing scopes of opportunities of multimedia is education, starting with the modern multimedia learning software and finishing with multimedia excursions in which are combined 3D-reconstruction and the interactive video including a format of full immersion [1, 4].

In our country active demand for use of multimedia technologies has begun from 1990th years when inexpensive multimedia systems on the basis of the IBM PC computer have appeared.

Now the program of development of Russian education assumes use of new forms of teaching with use of the rich and unique opportunities of the multimedia technologies enriching process of learning and allowing to make him more intensive, interactive, dynamic and evident.

Experience of application of multimedia in training with use of remote educational technologies

In this article it will be a question of multimedia technologies which do learning with use of distance educational technologies full and interesting. In such context of multimedia we will consider as the instrument of learning and as the communication medium.

One of flexible forms of the organization of distance interaction of subjects of educational process is the webinar [2, 7]. In 2017-2018 academic year the University physical and mathematical school of the Orenburg state university together with the faculty of distance educational technologies conducts distance courses on physics for intense learning of pupils of 9-11 classes to delivery of OGE, the USE, the Olympic Games, performance of research works and projects. Most often distance occupations become popular school students who have decided to connect further the life with the technical directions of preparation in higher education institutions. Especially relevant there is this problem for listeners from distance settlements of the Orenburg region. Classes are given by the teachers of university physical and mathematical school having long-term experience of use of multimedia opportunities in pedagogical process (figure 1).

Distance interaction is implemented by means of use of the license Skype software product for the business providing a possibility of connection to video broadcasting to 250 participants at the same time – for this purpose are necessary for them only the computer (or the smartphone, the tablet, the laptop) and connection to the Internet. During webinars pupils are provided with necessary educational and methodical literature, intensive individual and group consulting support, irrespective of the place of their stay.

Inclusion of competence-based approach in practice of education and implementation of federal state educational standards focuses on use in pedagogical process of also different multimedia

equipment and the multimedia learning software. In particular, to educational institutions recommend to use multimedia video projectors, interactive boards, interactive panels, graphic and wireless tablets, interactive prefixes, modern the document camera, the technical systems of questioning and testing.

Figure 1 – Carrying out distance courses on physics by means of Skype for business.

The distance occupations organized by us are under construction in such a way that the teacher uses different opportunities of the multimedia technologies allowing to conduct qualitatively and productively courses. At the same time the interactive board helping the teacher remains the valuable tool it is alive and fascinating to state a learning material [3]. The Skype program for business allows to broadcast contents of the screen of an interactive board in real time.

When holding webinars the interactive board of SMART Board and the specialized software delivered with it in a set – SMART Board Software, including is used:

– notebook (SMART Notebook);
– virtual keyboard (SMART Keyboard);
– means of a video (SMART Recorder);
– video player (SMART Video Player);
– marker tools (Floating Tools).

Means of a video allows to write down in the video file all actions of the teacher made at present time on an interactive board (figure 2), for example, of implementation of drawings at the solution of the majority of physical tasks which can be sent further to school students by e-mail for more detailed acquaintance.

Figure 2 – An explanation of the course of the solution of physical tasks on an interactive board when carrying out distance courses.

The graphic tablet which allows to carry out quickly marks during a distance explanation of material remains the irreplaceable assistant also.

Important is also a preparation of professional records of the video lesson directed to formation of necessary universal educational actions and subject competences at school students on physics and being a necessary component of program and methodical maintenance of independent studying of this subject. These tutorials allow to create images, texts and data sources which are possible for accompanying with a sound, video, animation.

The prepared series of video lessons mounted in the Camtasia Studio software product gives an opportunity learning to repeat or make up for the passed material, more deeply to study a new subject, to expand limits of the school program, to stay for a while virtually at demonstrations of the real phenomena or their virtual models [8]. During creation of lessons all important components of

educational video are considered: visual (visual image of the lecturer, lecturer's look, evident presentations, animation), lesson soundtrack, nonverbal (pantomime, mimicry, gestures of the lecturer) and verbal (human speech of the lecturer). In addition at each video lesson there are several interactive questions providing self-examination of students and feedback with the lecturer directly during viewing of video content (figure 3). In that case the video lesson reaches the maximum learning effect and will appear before audience an intelligent and integral product, but not a casual set of slides and phrases.

Figure 3 – The interactive question which is built in a video lesson.

Today the perspective direction of development of multimedia technologies is use of products of augmented reality in educational process. Three-dimensional projections with immersion on real Wednesday are in that case created. So, for the purpose of methodical support of distance teaching the general course of physics the first works on use of the designer of projects of augmented reality are begun. With his help it is possible "to recover" the usual physical drawing on a wall, to animate not always the clear scheme in the textbook, to show virtual physical experience directly on a student's table.

Summing up the results, we will select the most important intrinsic characteristics of multimedia in the context of this article:

– integration of diverse types of information;

– visualization of educational process in real time;

– interactive mode of communication with the user;

– imitating modeling of various processes and phenomena;

– audio support of oral information which is in parallel shown on the screen of an interactive board or the computer;

– the combination of audio comments to video content and animation providing interactivity in knowledge of difficult processes.

At preparation of occupations with use of multimedia technologies the teacher has to consider the next moments:

Quality of multimedia content. In other words, material which is shown by the teacher has to be available, clear, qualitatively issued, to promote motivation of knowledge, versatile perception.

The thought-over video series algorithm. Use of a video information and animation allows to enhance effect of what was seen. It is enough to teacher to think over the sequence of supply of all material on the screen.

Duration of multimedia connection. Time which the teacher has to spend for material demonstration has to be optimum to avoid negative impact on a condition of students.

Organization of feedback. Means of multimedia give an opportunity to the teacher to show necessary experience in practice and also to check his performance by students, being far off. The teacher also should take care of providing feedback when holding webinars which have to be followed surely by questions from students.

Conclusions

Thus, interactivity and flexibility of multimedia technologies can be very useful to ensuring learning of children for which special conditions of development of educational programs owing to their territorial dissociation from the teacher are required. Use of multimedia technologies in educational process allows to pass from passive to active, and at times and to an interactive way of realization of educational activity at which the student becomes the main participant of this process.

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