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COMPUTER EDUCATIONAL TECHNOLOGIES AND INTERACTIVE MULTIMEDIA IN EDUCATION – INTRODUCTION TO THE PROBLEMS UNDER EXAMINATION

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Abstract

The following article is related to a research focused on the highly-debated issue of using computer educational and multimedia technologies in the learning process in various information courses and the way their application influences the motivation of learning.

Аннотация

В следующей статье рассмотривается широко обсуждаемая тема за използование компьютера и мультимедийных технологий в учебном процесе и в различных информационных курсах, а так-же и использование их для мотивации учащихся.

Introduction

The relevancy of the current work stems from the latest tendencies in education, aimed at researching the possibilities of using computer educational technologies in learning and from the incessant search for new methods, means and ways of learning in order to enhance the efficiency of gaining knowledge and skills.

The interest in the introduction and application of computer technologies in schools is increasing by the second. Many authors believe that the introduction of new technologies in the context of education leads to significant changes in the learning process, and the activities and relations between the participants in that process.

The successful development of a society and economics, based on knowledge, depends upon its trainees getting the knowledge and skills needed to cope with the inevitable changes of their private and professional lives. Not only are technical skills needed to use the new information technologies, but creative, problem-solving and team-working skills are a must as well.

The key role of IT in the building of social and human assets is a reflection of the powerful influence which technologies have in educational programs. The optional and flexible forms of education using information and communication technologies significantly contribute to the improvement of the quality of the systems of education and learning. IT facilitates the adaption of learning and teaching to the needs of the learner, aids motivation and supports the innovations in pedagogics, making the process of learning a far more attractive one. Furthermore, it implies organizational changes in the educational institutions, which help improve the quality of learning and expand the access to education beyond the traditional methods.

The quick development of new technologies, resulting from an improved production achieved with the introduction of automated systems, microprocessors and programmable devices, robots, etc., raises an important issue for the field of pedagogy. This issue is related to training and preparation of the future generation that will actively participate in a substantially new development stage of modern society, informatization. Solving the raised issue depends equally upon the technical equipment of schools and the willingness of trainees to perceive the ever-increasing flow of information, including training information.

Advantages of computer educational technologies and interactive multimedia in education

Computer-based educational technologies have a positive influence on the learning process. They create an opportunity for:

– Active learning – students are engaged and actively participate in the learning process, instead of being passive receivers of information.

– Individualization and differentiation of education connected with the content, volume and progress rate, level of depth. These processes involve taking into account the individual peculiarities, interests and abilities of trainees and selecting such content, forms, methods, rate and volume so as to create the optimum conditions for each student to acquire knowledge and skills.

– Selection and repetition of educational content when using multimedia devices. Multimedia systems are programmable devices that allow unification of different types of information (text, images, audio, video, animation, hypermedia, etc.) and the interactive co-operation between user and system. (Khan, 2005).

– Self-preparation and self-education. Using the capabilities of systems with artificial intellect creates a prerequisite for a process of self-education, develops skills for individual visualization and acquiring knowledge, aids the development of analytical thinking and the development of the learner's personality (Woolf, 2009).

– Focus on the use of knowledge to resolve specific issues to develop the thinking process.

– Visual and dynamic presentation of phenomena and processes being researched or studied. Using the media of virtual reality, the learner has the opportunity to interact with a computer-simulated environment.

– New ways of accessing an enormous quantity of information – internet data bases, websites, libraries, electronic encyclopedias and others.

– A new way of communication between the participants of the learning process, including co-operative learning. The simultaneous development of communications and IT, which are the essential means of communication and co-operation, present learners with unparalleled opportunities to share information. The world is becoming more and more localized and connected thanks to the new ways of social interaction.

– Self-testing and grading using electronic and web-based tests.

– Increasing the learning motivation. The use of multimedia and audio-visual devices creates an opportunity to implement intensive forms and methods of education and individual learning activities, which increases the learners' motivation and the level of emotional perception of information. (Sandlin, 2010).

Characteristic features of media, learning conditions and results

Well-developed learning environments, based on new technologies, present students with many more opportunities compared to traditional education in relation to content, rate of work, preparation and overview of basic requirements, and also activities such as group work, consultations, testing and evaluation. These are the aims, long ago established as particularly important in pedagogy. Among the advantages of using technology are the opportunity to reduce the time of learning, better control and transfer of skills, a better co-ordination when presenting school work, performance, team work and self-control. In some situations, experience has proven that self -dependent students can cope with additional learning with little or no help from any institution.

Although the positive effects are evident when using multimedia devices in education, compatibility and continuity of the aims and subject-matter of are necessary: multimedia technologies have to be in accordance with the model of education in the given school and the

existing learning practices, as well as with learners' expectations and abilities to practice self-control. If the technological devices are chosen solely for their capabilities, there is a serious risk of incompatibility with the pre-existing learning environment at the particular school.

Despite the different characteristic features, efficient educational technologies create an opportunity for learners to have a timely and productive contact with teachers, educational content and the rest of the learners. This opportunity also leads to a facilitated communication and the overcoming of the psychological barriers between learners located in different geographical regions. The differences through which the various media achieve their effect are important for their potential benefits (table 1).

Table 1 - Comparison of the characteristic features of standard education and education with new technologies

Elements of education	Education based on standard methods	Education based on technologies
Planning and preparation	Opportunity to create education in accordance with the curriculum; opportunity for continuous control	It has to be methodically accurate so that it complies with the curriculum
Knowledge	Teachers have to implement their newest knowledge and best advice/expertise	It has to be created in compliance with the current standards.
Interactivity	Teachers teach the whole group ignoring learners' individual needs.	An opportunity to focus on the individual needs in relation to volume of content, rate of work, revision, correction, etc.
Memorization	The rate of memorization is different and varied.	It can be over 50% if it is a group activity supervised by a teacher.
Compatibility	Teachers adapt to the group, ensuring compatibility.	Maintains high standards but can be created to adapt to the characteristic features and differences of learners.
Feedback, follow-up	Teachers have to evaluate and keep track of students' work.	Records are collected and reports are generated.

Conclusion

The subject of improving the efficiency of the educational process has always been relevant and dependent on the development of science and technologies. This defines the forms, methods and ways to achieve the desired efficiency. The focus of contemporary education is to create an interesting and dynamic learning process using new technologies.

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