Application of ICT in Education of the Primary School Age – General Characteristics and Perspectives

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Abstract: *Application of ICT in Education of the Primary School Age – General Characteristics and Perspectives.* In our paper we demonstrate that the use of information technologies in the real process of learning represents the opportunity to revolutionize the way in which students work and think as a large computer memory and this information is analysed with high speed.

Keywords: computer technologies, information technologies, multimedia, interactivity, process of learning.

1 Introduction

Over time, communication between people is constantly improving. With increasing population the man discovered the need to spread his messages and knowledge to a wider audience. This need led to the emergence of mass media – namely newspapers, radio, television and nowadays – to computer and multimedia revolution. Our entire life is interconnected with multimedia, because we daily receive information from the surrounding reality through our senses, and each one is oriented towards a certain type of media. That is, why media is not a "natural" tool but description of the different ways of presenting information.

2 Using computer in teaching

Gradually, the development of technologies in different ways improved presenting of the information – from the print media, through audio-visual means, to modern computer technologies The need to use computers is required by the fact itself that they integrate all the familiar ways of presenting the information – text, graphics, animation, static graphics, live video, audio – anything that can be presented in a digital form (to be digitized). Besides its other advantages the digital processing allows for maximum quality, and very easy and fast processing and presentation – audio, digital video, digital photos, etc. Another key moment in the media is interactivity. Many Medias do not allow the audience to control the course of the information. Typical examples are television programmes and the films. The observer is somewhat passive – he cannot "participate" in the event. The linear presentation is appropriate where the audience consists of more than one participant. In such cases, we know very well that the compiler of this information is to "approximate" the entire audience, which has its weaknesses. But if the student works "in person" with a computer, it can be expected to implement some control, to influence the course of the flow of information to become

a participant in the event, to relive it – either with the keyboard, mouse or other input device. This is the interactivity and is specific to multimedia. Quality multimedia products rely primarily on user activity – he pledged himself to choose the way of work, adopt one or another option, if the mistake can go back and fix it, to draw additional information, ask questions and receive response, additional motivational incentives, etc.

According to the general public there are several major reasons why the technologies are becoming more widely used in the training, namely the opportunities to work effectively from teachers and students, increasing the amount of information that students can perceive, to improve the quality of thinking, meeting graduates need to be globally oriented, able to use sources of information in the real world outside school.

The use of information technologies in the real process of learning represents the opportunity to revolutionize the way in which students work and think as a large computer memory and this information is analysed with high speed. The computer enables you to search the data capable of breaking the information in different ways – such as text and graphics and moving images and sound in the form of tables and graphs as information stored on computer disk. It responds to each command specified by the user, and is used to access other Medias that retain information such as CDs, DVDs and access to the Internet. Computer applications as an interactive video can be extremely attractive. Colourful and bold graphic images, sound, different options, immediate feedback stimulates students' interest.

In recent years, Internet electronic communication network that exists on the basis of continuous improvement of computer technology provides pupils and teachers an easy, inexpensive and quick access to the world outside the classroom and the audience far beyond national borders. Working in a computer environment is extremely contagious and this fact is used by several teachers to motivate and optimize the entire process of teaching and learning at particular students. Using computer in educational process becomes learning by doing. In this case, students are given the opportunity to formulate alone conclusions, to use the database to interpret them, etc. In this line of thought computer is seen as technology training that develops technological thinking. The student uses knowledge of computing, plus knowledge of the respective subject area to meet one of the major technological issues – how to solve the task, how to handle knowledge that have in order to formulate conclusions and to reach a new unknown information. Learning by doing is a kind of active learning, which is much more effective than passive learning – learning by watching and listening.

When using a computer in the process of training, the student works safely and concentrated on the task, avoids constant supervision by the teacher, what can overcome the fear of error. Another advantage of the training with computer systems is instantaneous feedback that provides information to teachers and students for the correctness or falsity of the results. The speed of this information allows the student to trace the path that is walked to confirm, if correct, or to find fault, but the teacher is perceived as a tool for evaluating and ranking the performance of students as a precondition for management, organization and coordination of the training process.

Computer software supports and reinforces understanding of the material from students. Therefore, in this way, students have the opportunity to learn new skills at school and use the rest of their free time to improve the material already learned.

Summarizing the above mentioned, we note that the basic concepts are clarified at technology for training, technology for learning, educational technology and technology of education. They all have one basic function – to increase the effectiveness of the learning process.

Information systems for data and knowledge are part of information culture necessary for everyone in the information society. It depends on current society to be able to bring the growing generation up. In the future, our students would be educated citizens, able to live in and respond to the new situation. This is the point of implementation of computer technology into the learning process.

Changes in society will inevitably lead to changes in the overall education system, means and methods of training. Telecommunications and digital media have created new opportunities for learning because they activate more human senses. Investigations show that people perceive about 80% of the information available, if at the same time watch, listen and work with it. The new education reform will be determined by changes in technologies. Currently in schools and universities, the dominant printing technology will be gradually replaced by digital media technology and telecommunications. More and more will increase the need for a new kind of literacy – media literacy, for example, the ability of people to read, write and communicate using digitally encoded multimedia materials containing text, graphics, animations, video and audio.

Recent years are characterized by increased interest and attention to the use of ICT in education and this can be explained by the increase of its role in socio-economic development of society. Now, we are more clearly aware of the fact that the level and quality of education depends on overall condition of society. Development of education is related to the development of science, which provides the development and implementation of new technologies. Not coincidentally, the United Nations Development Program (UNDP) is one of the three main criteria for "human development index" for each country: the average life expectancy, real wages and education levels of people. Indicators themselves, entering the "development index" largely depend on the level of industrial, social, informational and educational technologies. Today, "mission of education is not so much to reorient the accumulation of knowledge as to the formation and development of creative thinking to find unconventional solutions in life, to change the existing reality, and so on" (Pavlov and others. 2003: 5 – 6).

For the realization of educational goals and bringing up active, creative and independent personalities with a high degree of intellectual maturity, it is necessary to use such forms and training methods that ensure implementation and interpretation of curriculum, stimulate mind, stimulate and provide motivation and willingness to learn from the students.

The use of information technologies and their full integration of pupils from primary school increases the quality and effectiveness of knowledge gained and competencies formed through the implementation of training presentations as a new didactic tool in teaching, combined with interactive learning methods. The unknown and difficult aspects of the curriculum can be interesting and entertaining even for small children. All it depends on how we present the new knowledge to them. There is an important approach to be innovators. Implementing interactive methods of work, teachers look for new alternatives for impact and non-traditional ways of learning – with an ambition to activate interest in children and enhance effectiveness in their work.

Technological decision making is, to a large extent, a collection of applications, from interactive presentations using MS PowerPoint, through the office suite of MS Office, and off course, many related applications. The programs offers opportunities for: appropriate animation, various colour solution, background selection and design, sound by inserting randomly chosen sound effect and audio files or linking to external media files, insert graphics, tables, charts, literary texts, video and more. Thus, the software allows for creating multimedia-rich applications.

Due to the specifics of working with children and methods of work at an early stage of the basic education level is appropriate, when presenting the new knowledge to create interest among students to use different approaches.

Using information technology inevitably leads to increased quality and efficiency of the acquired knowledge and competencies formed through the application of interactive didactic presentations as a new tool in education combined with interactive teaching methods.

Increasing penetration of new information technology is about to cause a real revolution in education and training. These technologies are conducive to reducing the gap between tradition and modern, to make more flexible management of the educational process, significantly change the functions and roles of both teachers and learners. Through them, much more effectively the four main principles raised in the report of the International Commission on Education for the XXI century can be realized: learning to learn (to explore) to learn to do (act) to learn to live together, learn to be (moving forward).

The idea for the comprehensive use of technology in the classroom is modern and daring. Different levels of learners and increasingly clear educational purposes, to the new state requirements, the controversy regarding the methods of bringing Bulgarian schools to European standards and an increasingly diverse classroom, naturally led to searching for new ideas for effective teaching. The dynamics of processes associated with the advent of computer technology supported teaching experience and teacher imagination with real opportunities for bold methodological models.

In this sense, a teacher is an innovator who wants to change the learning environment through the application of information technology. There is a right of individual choice – to use in its methodological and interactive capabilities of the various business applications to create modern teaching materials. Complying with basic computer skills to his/her students, s/he sought intermodal solutions – mostly through the multimedia presentations in PowerPoint application, word processing program Word, Paint drawing program and other available programs for younger pupils. The successful use of products produced by the teacher (ready files), where students go through in several exploratory steps designed to remind them how to work with this program, so they can acquire skills to work with it.

Options for application of information technology in teaching pupils from elementary school could not be universal, because there must be given certain level of preparation of for computer work, working conditions – physical and technical security, the selection of the topic, and also a set educational goals and objectives. Lessons are held in the computer room, making it easier for children to individually accomplish the exercise. Multimedia products are the new and interesting products that are designed to introduce younger students into a virtual world where learning is enjoyable and entertaining. Children love the challenges arising upon the activities based on the computer applications and are willing to make an effort to solve them. Very often the tasks in this version have game elements, which make them desirable and attractive to younger learners. The educational games then assist and help in personal and emotional growth of children.

Requirements for teachers in use of ICT in the learning process can be summarized briefly to:

- Ability to work with the software;
  - Reformulating the objectives of training and a new arrangement related to building skills for independent learning;
  - selecting appropriate educational information, and its adaptation to the didactic purposes;
  - Organizing a new way independent work of learners;
  - Ensuring conditions for control;

- Teacher – organizer, consultant, advisor and assistant.

It also changes the student activities associated with the use of ICT in the learning process:

- testing their skills, abilities, skills in a virtual environment, without being connected with money, or risk of fatal consequences;
  - Students solve gradually inserted cognitive tasks depending on their individual work pace and level of preparation;
  - Doing self-assessment of their work and the level of acquired knowledge and skills;
  - Differentiating meaningful information from the nonessential and preparing it for presentation through the media;
  - Communicating with students and people from other cities in the country and the world via the Internet;
  - Providing presentation of information collected through the media.

Educational opportunities of computer programs used in teaching in elementary school, in conjunction with the student:

- increasing motivation to learn;
- strengthening the work of students in the learning process;
- increasing interest in the subject.

And in relation to the learning organization:

- differentiation and individualization of the learning process;
- additional opportunities to create a problematic situation;
- good systematization of knowledge;
- quick check of the hypothesis proposed by students;
- rapid diagnosis of the outcome of the learning process;
- transition from quantitative to qualitative research.

The intellectual development of students:

- introduction to modern information tools;
- awareness of students use the computer training;
- increase the level of scientific presentation of the material;
- opportunity to present different forms of information (tables, graphs, drawings, etc.);
- additional opportunities for development of model concepts.

Technical capacity:

- modelling processes that are impossible to visualize or hard re-create in real terms;
- additional opportunities for visualization;
- measurement and visualization of fast processes;
- scrutiny of individual moments of the experiment;
- shortening the time for implementation of activities related to information processing.

The use of ICT training is one means of organizing the cognitive activity of students that successfully combines traditional wit non-traditional activities, as it can be seen in particular computer presentations.

The quality of modern education in primary schools in various subjects is directly related to the introduction and use of modern IT-based multimedia learning tools. That media is now the emblem of modern education. It makes it more intense, more attractive and above all – more effective.

3 Conclusion

The computer in education can be extremely attractive. It stimulates students' interest, because it allows carrying feedback to shape and colour graphic images and more. The teacher can use the "contagious" effect on your computer in order to motivate their students and optimize the learning process. Thanks to the implementation of computers into teaching, learning has been linked to action because the students may himself involve to use a database to change them and others. This kind of teaching is much more useful and effective than passive.

The use of multimedia allows discovering new forms of communication in the classroom, to develop new concepts in the organization of the learning process. With its assistance is an interesting presentation of information using multiple media – text (font, colour, size, etc.), graphics (pictures, icons – an important element is the introduction of colour and composition), animation (sequence of static images that shall be rotated with high speed), video and sound.

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