THE NEED FOR APPLICATION OF INFORMATION TECHNOLOGIES IN EDUCATIONAL PROCESS

_____

Kiril Cackov and Despina Sivevska

University "Goce Delcev". Faculty of Education, Stip, R. Macedonia

kiril.cackov@ugd.edu.mk   despina.sivevska@ugd.edu.mk

Abstract – Time in which we live is characterized by strong changes in technique and technology that are reflected in many other areas of society. Modern society is characterized by dynamic changes, intensive development of production, the information, communication technologies, thus creating preconditions for quality change in all spheres of society, especially in education.

In order for education, as one of the most important factors for the development of education, to respond to new challenges that brings information and communication age, must undergo change through the application of new media, new technologies and modern methods and forms of work.

This paper shows the importance of information technology for the advancement of the educational process and the need for its implementation in the educational process.

Key words: informatics technology, educational technology, computer

The XXI century is the century of fast developments of science and technology which implies significant changes in the society, as well as in culture and life in general. As a result of this speedy development, the amount of new knowledge is constantly increasing and the existing knowledge is quickly becoming obsolete. There are also changes in information society, economic restructuring, organizational reforms and changes in present jobs – all this results in the need to find more efficient ways of learning and getting across new knowledge.

These social changes make the modern man face new needs, they demand continuous development, upgrading and enabling, all of which could make people able to successfully answer to the new needs, i.e. to the challenges of

...nd learning are the essential elements of man's ...an sees knowledge as the key to his success in the 21st century.

Consequently, the changes happening in the society impose the need for changes in the educational system as well. The educational system must be adjusted to the social changes and to enable the individual to successfully meet the needs of modern living. The basic idea is that there should be an educational system which, in every moment of every individual regardless of his age and professional status, will enable the individual to learn various new and useful knowledge, practical application of that knowledge, independent acquisition of new information and independent learning, to effectively fulfill various life tasks and improve each individual's living conditions. In order to meet these requirements, the educational system must change constantly as a result of constant changes and innovations in knowledge. New and various media and technologies must be continuously applied in modern teaching aiming at richer and more permanent knowledge that pupils acquire.

The new changes happening at global level – application of new media and technologies in education, i.e. information-communication technologies, post new requirements before the educational system. Vrcelj (2000) points out: "The development of information technology influences education in many aspects, and some of these can be basic. New technologies influence the nature of work… With these changes in technology the abilities needed for performing work also change, and, if we see education merely from a professional point of view – as enabling for work, most people agree that in future life-long education will be necessary".

Education is one of the most important factors responsible for the development of society, so it is important that it be adjusted to the changes that brings today's information age. To be able to successfully implement these changes, it is not enough only to change and upgrade the content of learning. It is important to enter and some changes in teaching methods. Modern education needs a new model of learning – active learning which is based on information resources from the real world. Today more indicates the need for education based on methods that use information and communication technology.

Information literacy and new technologies represent the key for promoting the concept of sustainable development, the concept of a learning society and life-long learning. The realization of these global concepts greatly depends on the individual's ability to cope with the endless multiplicity of information, to find appropriate kinds of information, to evaluate and make self-evaluation, i.e. on his information-communication abilities. To be able to adjust to new changes which brings new era of information is necessary to change people, or teachers and their preparedness to respond to new challenges. Teachers must change their knowledge and their pedagogical approach.

know how to use modern methods and Equally is important teachers not only be informatics, but also information written or possess knowledge about what information literacy is and what is its significance for today's education. Therefore it is important to make certain changes in curriculum content and methods at all levels of education, especially important to such transformations occur in universities where they educate students – future teachers. This will be affected to ensure that the application of new trends in education and in school.

Teachers need to constantly innovate and complement their knowledge. Person who acquired a degree of knowledge can not be considered the same and this knowledge will be enough for a lifetime. The larger number of institutions as the primary mode of transmission of knowledge is the lecture. Although lectures can be an effective way of transmitting knowledge, proved that it is not so for most students. Often it happens that the student loses the desire to learn when it is forced to listen and learn material which is already known or which is inclusive and can not follow. The tendency of the new educational system is changing the situation of the student. Such a structure would be more flexible to knowledge can be accessed from several places, and time and pace of learning, and choice of material can be adjusted against the student. To achieve such access to education and change the way teaching takes place.

Enabling of new teachers for contemporary education among other things is directed towards his learning how to use modern educational technologies and apply them in practice in the course of his work in primary school, as well as during his further training in education for sustainable development.

From long been known that teachers are not only common carriers of knowledge. Information society bring and new opportunities for education, as well as rich and useful information. Improved technology used in the educational process has proved very efficient and effective. New ways of learning through the use of modern teaching media enable better and easier access to educational programs, adoption of content and its implementation in accordance with their individual needs.

In traditional teaching dominates frontal form of work, with expressed lectured function of the teacher who does not provide sufficient interaction with students. Teaching is oft en formalized and verbalized and apparent lack of durability which reduces the knowledge and the connection of theory with real life. In such training lacks feedback, nor students know how successfully overpowering learning content, nor the teacher has the full picture of the knowledge of their students. One reason for this situation is unfavourable didactic and technical environment in which teaching takes place.

In a world in recent years, made significant steps to equip the school with modern teaching media and from school are expected to adequately apply and in innovate methods and forms of work with students. Increased

...aching media, teaching methods and forms of ...ising the efficiency and effectiveness of the educational process. Even in recent years, with massive use of computers in schools have created preconditions for quality educational technology innovation. Multimedia programs that are designed for personal computers off er opportunities for creating electronic textbooks with text, image, sound and animation films so that students can progress to self and to acquire the curricula, to return the contents are not sufficiently clear and receive feedback, in accordance with their abilities and interests. Information technology in education offers opportunities for the use of new teaching methods and new organization of teaching with the shortcomings of traditional teaching could be reduced in the limit of tolerance.

Classic classrooms should not be discharged but to add new technology that would integrate positive elements of traditional technology changing the position of student and teacher in order to increase the active participation of students and to continuously send its progress (Mandić, 2003).

New educational technology represents a system of teacher's and pupil's activities in the educational process, with certain principles of organization and mutually connected goals – contents – methods. Such circumstances in teacher's work demand teachers to be acquainted with the advantages and disadvantages of each teaching aid because none of these is universal and sufficient when used alone. This imposes the need for careful choice and appropriate combining with other traditionally checked teaching methods and procedures. The application of modern educational technology, the communication of teachers with pupils as well as the communication among pupils will be made more complex and various (Đorđević, 2003).

Educational technology means the manner of achieving educational goals, various procedures and means for successful teaching (Pastuović, 1999, Matijević, 2002). In addition, it is understood that during getting accross the learning content and methods certain technical media and technologies are used. Various authors interpret the terms technical media and technologies in different ways, for example: information carriers, form of information, manner of communication, teaching technology, etc. (Matijević, 2002, Pastuović, 1999, Bates, 2004, Ally, 2005).

In order for all the elements of educational technology to be functional, they should be adjusted to learning objectives, contents and characteristics of pupils to whom they are intended. Teaching aids and appropriate educational technology used in the teaching process should not only offer learning contents, but they should also teach how to look for and how to evaluate information, how to be "a good person" (cooperative, tolerant, nonviolent, etc. – Matijević, 2004a).

However, each element of educational technology is not suitable for transferring any content, for realization of all objectives; it is not appropriate for all ages of pupils, their different abilities and learning styles. For each application of educational technology we need to determine the role and

nts, preferring their advantages and avoiding .... , 2004a). Here media didactics concerning with the following questions is displayed: how to improve the learning and teaching process by means of applying appropriate media and technologies, developing learning strategies and teaching about the application of media in efficient ways, designing and evaluating multimedia projects, communication in distance learning etc. (Matijević, 2004b, Kommer, 2001).

When using appropriate multimedia in teaching, great attention should be paid to didactic strategies that are built in into the respective media. Contents should be shaped in such a way that they are able to motivate the development of an awareness of one's advancement and knowledge that will enable independent choice of contents that are in harmony with the pupil's abilities – individualization of teaching through non-linear organization of contents. This way the learning of the pupils with diff erent abilities, average pupils, gifted pupils as well as those with difficulties in learning, will be facilitated. Contents should be prepared in different forms: text, picture, animation, simulation, audio, video, all this with the aim to enable easier learning of the material on part of all pupils (Seufert and Euler, 2005).

Taking into consideration the age of the pupils in the early grades of primary school care should be taken of the choice of contents that are to be realized by means of applying modern educational technology. Attention should also be paid to the media used – they should contain an appropriate range of information in different forms, they should have frequent feedback information (positive or negative corroboration, interactivity) that will have impact on motivation and thus successful learning. At the same time, the technology used should be simple enough and suitable for usage.

If one and the same information is transferred to pupils by means of two or more media (for example text and sound, or film recording) the pupils will receive and memorize such information more clearly. Audio and film presentation of some teaching content enables the formation of a clearer image of real events.

Through multimedia presentation of learning content, students closer follow and remember learning content (especially those that are difficult to learn by listening and reading) and participate actively in the process of cognition new content. Rapid acquisition of knowledge to students offering them opportunities to think, analyze, conclude, more attention to devote to learning through research, discovering and solving problems and thus make greater contribution to its development. Is especially important to mention that modern computers students can use at home and thus to acquire diverse knowledge relating to the curriculum and beyond.

Using a computer in teaching will enable the pupil to independently or with the teacher's help, present the teaching content using, individually or in a package, picture, sound, drawing, animation, etc. This also requires the pupils to solve tasks, ask questions and lead a conversation. Thus the pupils' work can be monitored, they could be helped, their work could be evaluated

back information about their completed work.
motivation of pupils to work with computers
and the possibility to advance at their own pace.

Computer training provides a flexible organization of activities, teaching and study of material and full appreciation of the work of the student. It created conditions for individual development of the student complies individual opportunities. Through teaching by computer are creating opportunities for the development of mental processes among students, opportunities for observation, description, systematization, compare and locking, students are trained to use various sources of knowledge, new strategies of learning, skills for independent learning, the formation of moral, ethical and aesthetic values.

However, beside numerous advantages computers also have some disadvantages when applied in the teaching process. Their main disadvantage is that they cannot offer a personal example; they cannot understand children's mental processes during learning and diagnose the causes for mistakes or omission – i.e. they cannot completely replace teachers (which is not their primary goal, actually), but they should complement and facilitate their work. Using computers pupils cannot sense, smell or touch reality, they cannot work with their hands – consequently, computers cannot replace all the other teaching aids (as over usage can lead to alienation); thus the best effect is achieved if computers are combined with other teaching aids and modern forms of teaching.

Conclusion

Imperative of the new scientific-technological revolution and information age is to enable modern man to understand and adopt scientific achievements with them to develop and enrich their personality, able to be used in the process of creating new knowledge, improvement of production, the quality of social life and create the conditions for confirmation of his own personality. Modern educational technology, using multimedia systems, creates preconditions for engaging all senses in the process of acquiring new knowledge, develop creativity among students and provides greater creativity in teaching and student learning). Some eminent authors suggest that the driving force for transformation of education is actually a new generation of students – the so called "Net Generation".

The development of information-communication technology is expected to be a permanent process and their application in the educational process will be even larger and more diverse. Modern didactics, Methodists , teachers believe that information technology increases the importance of learning in the educational process and that it becomes an important factor in teaching.

1. Adamčeva, S. (1996); Aktivna nastava; Legis: Skopje.
2. Đorđević, B. (2003); Pretpostavki za uspešna komunikacija i primena na mediumite vo sovremenata nastava, vo Pedagoška stvarnost, 1-2 Novi Sad.
3. Kralj, L. (2008); *Utecaj obrazovnih tehnologija na poučavanje*, Retrived from: http://edupoint.carnet.hr/casopis/65/clanci/1#top
4. Mandić, D. (2003); Didaktičko-informatičke inivacije u obrazovanju, Beograd: Mediagra
5. Maravić, J.(2003); UNESCO document o informaciskoj I komunikaciskoj tehnologiji u obrazovanju, Retrived from: http://edupoint.carnet.hr/casopis/aktualni/clanak-04/index. htm
6. Matijević, M. (2004a); Udžbenik u novom medijskom okruženju.; in: Udžbenik i virtualno okruženje, Zagreb: Školska knjiga.
7. Matijević, M. (2004b); Multimedijalnost i multimedij kao predmet proučavanja multimedijske didaktike; Unaprjeđujemo kvalitetu odgoja i obrazovanja, Zagreb: Retrived from: http://bib.irb.hr/prikazi-rad?&rad=167152
8. Stanković, Z. (2003); Pedagoskata funkcija na nastavnite sredstva; Pedagoška stvarnost, XLIX, 9-10, Novi Sad
9. Vrcelj, S. (2000.); *Škola i suvremena obrazovna tehnologija.*,U: zborniku "Nastavnik i suvremena obrazovna tehnologija", Međunarodni znanstveni kolokvij. Rijeka: Filozofski fakultet u Rijeci.
10. Eleven, E., Gluša, D. (2008); Učenje na daljinu-dopuna ili deo savremene nastave, Konferencija: Tehnika i informatika u obrazovanju, 32000 Čačak, 9-11Maj 2008

POTREBA ZA PRIMJENOM INFORMACIJSKIH TEHNOLOGIJA U OBRAZOVNOM PROCESU

Kiril Cackov i Despina Sivevska

Sažetak – *Vrijeme u kojem živimo obilježeno je znatnim promjenama u tehnici i tehnologiji koje se odražavaju u mnogim drugim područjima našega društva. Moderno društvo obilježeno je dinamičnim promjenama, intenzivnim razvojem proizvodnje, informacijskim, komunikacijskim tehnologijama, čime se stvaraju preduvjeti za kvalitetnu promjenu u svim područjima društva, a osobito u obrazovanju.*

Kako bi obrazovanje, kao jedan od najvažnijih čimbenika razvoja pedagogije, odgovorilo na nove izazove koje donosi informacijsko i komunikacijsko doba, ono se mora podvrgnuti promjeni uporabom novih medija, novih tehnologija i modernih metoda i oblika rada.

Ovaj rad pokazuje važnost informacijske tehnologije u unaprjeđenju obrazovnog procesa i potrebi za njezinom implementacijom u tom procesu.

Ključne riječi: *informatička tehnologija, edukacijska tehnologija, računalo*