

ICT IN NEW MODEL OF LEARNING

Svetlana ANĐELIĆ, Nikola DRAGOVIĆ

angeo@verat.net, visbaden.ue@gmail.com

*M.Sc. Svetlana Anđelić, assistant., graduated in engineering, Railway College, 11000 Belgrade,
Nikola Dragović, assistant, engineer, Railway College, 11000 Beograd, Zdravka Čelara 14,
SERBIA*

Abstract: *The new vision of higher school system of education, with student being the central subject of the educational process, opens teaching and learning possibilities with everything adapted to student: methods of work and teaching, ways of communication, evaluation, obtaining return information and the whole of interaction, both between the teacher and student as well as between the students themselves.*

Key words: *ICT in education, lifelong learning, hybrid learning, multimedia in education*

1. INTRODUCTION

Information-communication technologies (ICT) in education, as a product and synthesis of developing computer, telecommunication and television technologies, can be used in educational process in many ways and in various modalities, enabling application of various pedagogic strategies and methods in realization of teaching and learning processes. Applying of ICT is very important, useful and creative didactic tool, which can be used in education rather successfully.

2. MODERN METHODS AND MODELS OF LEARNING

The purpose of all the efforts in developing modern methods and models of learning is to enable everyone to learn at any moment, i.e. to not condition learning with time, place or tempo. One attempts to develop the so-called adaptable methods respectively personalization of learning, which will allow lifelong learning. Certain degrees of personalization can be noticed in some models of distance learning. According to J.C.Taylor, distance learning has developed through several generations (Table 1.)

	time, locality & pace of learning	interaction	costs tending to minimum	examples
correspondence model	flexible	no	no	telegrams, letters
multimedia model	flexible	yes	no	audio & video cassettes, interactive video, learning with computer
telelearning model	non-flexible	yes	no	audio & video conferences, TV/radio programs, audio-teleconferences
flexible learning model	flexible	yes	no	interactive multimedia, hypermedia documents
intelligent flexible learning model	flexible	yes	yes	Internet hypermedia documents, communication with computer

Table 1. Evolution of distance learning model of learning [1]

3. LIFELONG LEARNING

Continuous development of technology, as well as its implementation in practice, imposes the need for permanent professional development for people employed in all areas of economy and outside it. We are all familiar with the old saying – “You live and learn”– which implies several things:

- That the concept of “lifelong learning“ is not a new idea
- That it is not anything imported from the modern Europe that we are now trying to apply in our reality
- That every man has learning and development capacities during his whole life

Additionally, the term appearing in various documents of the European Union is “life-wide learning, which points to the three basic forms of education in modern society. (Figure 1)

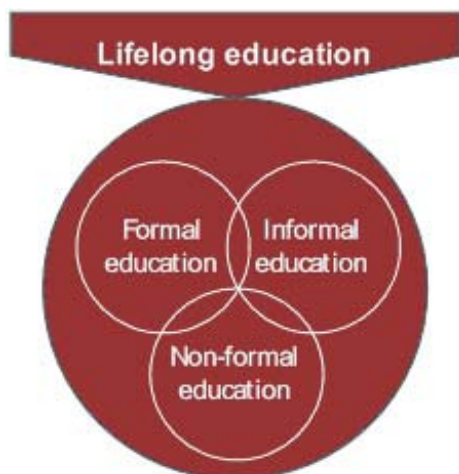


Figure 1. Lifelong education [2]

Formal education refers to education processes that take place within the formally organized educational system having hierarchy structure (from primary schools to universities), which in their final outcomes lead to obtaining certain degrees and diplomas.

Informal or *collaborative education* implies various, mostly individual educational activities, initiated by the person that learns or spontaneous gaining different experiences and knowledge during the whole life (from home learning by electronic media and the Internet to gaining knowledge through contacts with other people in socialization process).

Although the terms non-formal education and informal education are treated as synonyms in most classic English dictionaries, people engaged

in education made a significant difference in meanings of these terms during previous couple of years. For example, most authors nowadays would agree that, when we talk about *non-formal education*, we have the following in mind: [3]

- Organized and planned educational activities
- Activities that encourage individual and social learning
- Gaining various skills and knowledge, developing attitudes and values
- Activities that are performed outside the system of formal education
- That are complementary to formal education
- Organized on volunteer basis
- Designed and conducted by trained and competent educators

Some of the typical examples of informal education are the following: educational activities within reconnoiter programs, youth camps and exchanges, long-term volunteer exchanges, various trainings, seminars and courses aimed primarily to development of some important social attitudes and values (e.g. intercultural vulnerability, non-violent transformation of conflicts, human rights, etc.) or gaining some concrete knowledge and skills (communication skills, teamwork, project management, PR and marketing, foreign languages, computer skills, etc.).

4. HYBRID LEARNING

The efficient use of ICT in education is the one based on certain principles, such as: making sense, open communication, freshness, agreeable conditions and consequences, organization of essential ideas, modeling, active suitable network, consistency, individualization, and proper use of the means for learning. The most successful lessons combine different teaching methods, thus breaking the feeling of monotony. Each teaching method is suitable for some aspect of a lesson.

Most theoreticians believe that the concept of modern ICT in education encompasses: e-learning, computer, multimedia and Internet.

Learning by application of ICT can be individual (with the help of educational software) or groupwise. The traditional tutoring signifies that attendees can put questions to the teacher or

comment on it and discuss it in the scope of the group. Something similar is built-in in the on-line educational courses.

The newest model of learning by application of ICT is the so-called hybrid learning.

Hybrid learning (blended learning) is based on different combinations of traditional face-to-face lectures and learning by Internet, as well as using various other technologies (audio, video, etc.), all with the aim to devise the most effective and acceptable (more enriched) learning environment for users.

Technically speaking, the concept of hybrid learning denotes learning environments in which electronic learning is used together with traditional learning and/or human teacher (human tutoring), i.e. where the face-to-face communication with attendees is combined with learning by means of computer.

The essence of hybrid learning is in an enlarged sensibility for the needs of attendees, as well as in greater insight in advantages and shortcomings of different media and communication technologies that can be used in the process of teaching and learning of a subject whole or a lesson.

One can conclude that hybrid learning denotes a combination of the best procedures of traditional and e-learning, considering the factors such as: specific properties of course content, available resources, the capability level of schools for development of e-educational material, models of instructional design, as well as the number of attendees and their readiness for successful application of e-educational material. Studies have shown that hybrid learning can transcend the schism between the traditional and the electronic learning, as well as outdo both approaches regarding rate of success and satisfaction of attendees.

For successful implementation of hybrid learning, one of the usual combinations (models) of on-line and off-line learning should be chosen:

- *model of supplement* – different on-line learning activities are added to traditional ways of learning in the classroom;
- *partial replacement model* – instead of applying traditional learning methods and face-to-face lectures, the on-line forms of learning are used for selected subjects/lessons only;
- *on-line learning domination model* - attendees learn on-line matter in their own tempo, along with minimal learning in the classroom, as

well as through personal on-line and off-line contacts with the teacher;

- *the complete on-line model* – all course material is available on-line, interaction with attendees is also exclusively on-line;
- *"self-service" model* – attendees can choose between on-line and off-line presentation of content and contacts with teacher.

It will be advantageous if the decision on the way of implementation of hybrid learning is made bearing in mind: a) optimal media for the presentation of specific kinds of content, b) expectations and preferences of attendees, c) planned educational effects, d) time and expense necessary to introduce on-line components of hybrid learning.

5. MULTIMEDIA IN TUITION

Considering the fact that every man learns, i.e. gains new knowledge in his/her own way (some people have photographic memory, other people like to learn through experiments, etc.) we have to face the issue of presenting the information in the way that would make it interesting and easy to remember for as many students as possible. One of possible solutions to this problem is application of modern ICT in education, in all stages of learning (presenting, gaining and checking- up).

Multimedia is a method of presenting data by different kinds of digital media: audio material, video material, text, picture and animation.

The term multimedia is very often misused. Many teachers believe that it denotes the usage of an electronic media in the educational process. To use the term correctly is to use it when talking of information having more than one meaning? For the perception of such information, one simultaneously uses several senses, because it propagates and exists in different media.

Positive effects of multimedia are:

- attracting students' attention by presenting the teaching material with greater diversity, clearness of layout and contemporariness, and in a more interesting way;
- more thorough understanding of content and more effective attaining of new concepts;
- better memorizing of content and greater capacity to apply the knowledge in new circumstances;

- greater degree of communicativeness between participants in educational process;
- higher level of students' interest, motivation and satisfaction.

Creation of content with multimedia elements should mean more than a handful of colorful pictures and various audio and video effects. One should avoid the so-called muddymedia applications, respectively the applications with too many multimedia elements, too much buttons, screaming colors, inconsistent look of pages, unmarked or badly marked links, links leading nowhere... *Good design in the educational sense can outweigh inferior quality of multimedia, while the reverse does not obtain!*

Attendees should be enabled to find their way in the material easily. Besides exhibiting the content in a better and more efficient way, multimedia elements must be efficiently searchable and selectable on the basis of attendee's requests. Table 2 shows some features of good respectively bad design of multimedia content.

<i>Good design</i>	<i>Bad design</i>
Interactive	Passive
Nonlinear	Linear
User-friendly graphical interface	User confused by the interface
Structured lessons	Structureless
Successful usage of multimedia	Mostly text
Due attention given to educational details	No attention given to details
Due attention given to technical details	No attention given to details

Table 2. Features of good respectively bad design

6. CONCLUSION

The best work organization in the education process is the one in which all attendees work, think and solve problems. Humanistic approach to teaching implies a school in which life goes on as a process of interaction between the teacher and attendees, and among attendees themselves. Thus, further development, improvement, i.e. modernization of educational process moves toward interactive pedagogy, pedagogy of

dialogue, conversation, cooperative learning, with the aim of basing the teaching process as an overall cognitive system and making the feedback following each step of attendee's activity.

Implementation of modern ICT in education, as assisting didactic tool, enables creating of new learning models, aimed at more effective and efficient education of attendees, who will at any time be able to fit in new technical and technological challenges.

LITERATURE:

- [1] Svetlana Anđelić, *New approaches to learning through applying modern ICT*, International scientific conference UNITEH'07, Gabrovo, Bulgaria, 2007.
- [2] Svetlana Anđelić, *Modernization of education process in the environment of modern information and communication technologies*, I Scientific and Expert Conference "Industrial Management and Development", University Union, Belgrade, Faculty of Industrial Management, Kruševac, Serbia
- [3] Darko Marković, *What is informal in informal education?*, a text from the book "Informal Education in Europe – a step toward recognition of informal education in Serbia and Montenegro", Group "Let's...", Belgrade 2005, pages 10 – 13
- [4] http://www.en.eun.org/eun.org2/eun/en/innovation/sub_area_frame.cfm?sa=97&id_area=3&row=1
- [5] <http://europa.eu.int/comm/education/infos.html>
- [6] *Proposal for a recommendation of the European Parliament and the Council on European Cooperation in Quality Evaluation in School Education*, Brussels, COM (1999)709 final, www.see-educoop.net/education_in/pdf/reform-reg-level-educ-admin-ser-yug-ser-srb-t05.pdf
- [7] <http://www.uwm.edu/Dept/LTC/hybrid>

ИНФОРМАЦИОННИТЕ И КОМУНИКАЦИОННИ ТЕХНОЛОГИИ (ИКТ) В НОВИЯ МОДЕЛ НА УЧЕНЕ

Светлана АНДЖЕЛИЧ, Никола ДРАГОВИЧ

ас. инж. Светлана Анджелич, ас. инж. Никола Драгович, Висша железопътна школа, 11000 Белград, ул.
Здравка Челара 14

СЪРБИЯ

Резюме: Новото виждане за системата на висше образование, в която студентите са център на образователния процес, открива възможности за преподаване и учене с всичко, адаптирано към студент: методи за работа и преподаване, начини за общуване, оценка, получаване на обратна информация и цялостно взаимодействие както между преподавателя и студента, така и между самите студенти.

Ключови думи: ИКТ в образованието, учене през целия живот, хибридно обучение, мултимедия и образование.