

THE COMPULSORY PRESENCE OF ntic IN TEACHING AND CHOOSING THE PROPER SOFTWARE

Mariana Viorela, Grigore-Filip (Șerban)¹

Abstract

The New ICT tools have also reached the field of education in order to facilitate the educational endeavour. Nowadays, due to the current state of events concerning the Coronavirus worldwide situation, it has become a “compulsory necessity”. With certain hesitation, teachers have started employing the New ICT tools both in drafting school documents but also in actual school classes. The work tools available for this domain have diversified starting from the Microsoft Office array of programs towards smart gadgets and software, specially created for the field of education.

This article presents a classification of the educational software and the manner in which we can analyse and establish the degree of usability of educational software.

Key words: *ICT; students; contemporary education; teaching platforms.*

JEL Classification: *I21, O30*

1. Introduction

It is a known fact that the NICT is the source for economical and social changes affecting all countries in the world nowadays. The Internet – one of the most important of these innovations has the greatest impact being global, full of resources, adaptable, dynamic, accessible to everyone and not very expensive to employ.

In Romania it had a slow start especially by reason of financial resources available. From the data provided by the National Institute for Research in Informatics (ICI Bucharest, www.ici.ro) we can trace the path of expansion of the World Wide Web. Starting with the year 1971 the first studies concerning computer networking are launched and in four years' time the early modems are assembled and communication channels are being evaluated for data carrying. There are many stages initiated until the year 1993 when the approval to register national domains (...ro) is received and the first Commercial Internet operator is named *SC EuNet SRL*. By the year 1998 – 20,000 ...ro domain sites are listed and closer to the present moment in the year 2000 we had 3,817 indexed servers.

At the ending of the 90s the cyberspace enters the field of education transforming it forever. Thus, the expansion of the World Wide Web and the instant access on the Internet support intercommunication between every person worldwide. The input is continuously updated with incredible velocity favoring inquiry and research on any subject matter either real life or virtual. Electronic learning (e-learning) is a novelty of the period which provides the opportunity to educate online.

The present-day reality in the extent of education is reflected in the NICT, that is a modern approach, attractive and interactive (when it is possible to apply) manners of accomplishing the combined operation between educator and scholar in the aim of achievement of the educational goals.

Due to the corona virus school units have been forced to introduce various educational software and to employ gadgets (tablets/ smart phones) but in order for them to be efficient these need to comply to certain conditions and, of course with the school planning.

2. Short opening on the impression of NICT in the performance of teaching and studying.

Formal education is an action by which knowledge is both imparted and acquired by means of teaching and learning occurring eminently at school or at a providing education

¹ Ph.D. Student, "Valahia" University of Târgoviște, Romania, E-mail: viorelaserban25@gmail.com

institution. It has been divided between traditional and modern teaching. Modern education techniques are diverse all over the world at the time being and the first choice is an association between the former and the new approaches. There are places where children are being taught in the manner of typical lessons and at the other end we have the ones that cannot perceive studying without their electronic tablet.

In general, when educators employ the usage of NICT during traditional classes, usually they only utilize worksheets created in Microsoft Word or sometimes Power Point Presentations and they do not access educational software.

But the new information communication technology consists of a whole array of scientific innovations that can be either programs (software) but also devices (hardware, as in the case of smart boards that can function as video projectors or similar to a classic board without the necessity of cleaning the written texts, they even allow saving information or school work on the computer) all having the aim of boosting formal training.

One of their main features is the conformance to the educator requirements (moving from having source function towards coordinator function) when presenting the work material (through visual / listening aids) and help comprehension, acquisition, they also encourage a growth of perceptiveness due to the elementary evidence that the new information and communication innovations are intriguing, engaging and even entertaining.

Certainly in the case of assessment (but not only this), the young student would rather be asked to play a computer educational game (by all means comprising the topics of the lesson) than having to complete a typical test paper.

The pillars of development are expressed by arousing perceptiveness and response from the student's part this leading towards data acquisition of data cultivation of proficiency. As consequence the learner will be more involved in the classes inquiring more about the presented subjects.

Working in a more efficient manner and at the same time having the possibility of engaging a greater number of students is another attribute of NICT. For instance during a class, having computers with specialized software installed and each learner being provided with headphones and a microphone would stimulate the learners to listen, to speak and solve exercises as if there were a teacher for each and every student. Thus, visual and listening learning are triggered and, in aftermath assure information acquisition in long term memory. The act of writing down everything to be memorized takes a step backward and in the spot light we have engagement and maintaining it during the development of the lesson.

To all these is added the arousing of creativity from both teacher and student. By associating acquired knowledge with the new teaching pattern filled with images and sounds the learner's mind will be trained to apply the know-how to latter instances, to innovate and therefore to bring about new improved concepts.

The evidence that today is built on technological newness must not be overlooked not the fact that the intensive employment on NICT during courses leads to teacher and student improvement, a boost of advanced computer skills in building projects to cooperating with peers. Still, the information and communication technology does not have the purpose of replacing the teacher but they are meant to assist teaching.

Educator's activity is student centered on helping them find their own personal manner of assimilating data, teaching them how to learn and to shape their personal knowledge. In these current conditions the educator is promoted from the role of main source of knowledge to helper, coordinator, and manager of training.

By creating an educational blog (or possibly a work group or even an app for the smart mobile phone or tablet) the educator can interact with his students, receiving comments and questions related to the previous lesson. In his turn, the educator can give feedback in the form of comments. This manner of communicating substitutes the physical presence during classes and

the teaching material can be posted on the respective blog anytime even apart from course hours. Through this approach we accomplish asynchronous teaching as it is not firmly connected to immediate reply from the teacher as is the case of traditional school courses.

Deriving from the above is another important feature of NICT that is work material and teacher's notes can be accessed at anytime; the student can use them both during classes in teacher's presence but also afterwards in order to revise. Ultimately we achieve continuous studying and the educator has the opportunity of enclosing various tasks to be dealt with at a later time.

3. Analysis of computer assisted training software.

The NICT environment has its own particularities which demand to be unfolded as a first step in performing a proper analysis of the training computer assisted software. Thus, the information communication science is characterized by having an interactive feature, correct data, it bears the freedom of providing operations in dynamic and various forms and also each user can interact distinctly with the operating system/ educator. Some of the first applications to come into usage were of the type *Drill-and-Practice* that employs the resources developed through repetition and algorithm. At a later time they were transformed into more complex software as CAI (computer assisted instruction).

Computer Assisted Instruction is using a program installed on a computer/ computer systems to introduce and practice the teaching material in schools. This type of instruction has two approaches. Either they present directly the information or they can assume a tutorial part assessing student comprehension. In the second case the computer presents inquiries and the student types in the reply and the computer reacts accordingly. In case the reply is correct, the system presents him with more challenging problems but if it is wrong the system will send messages and will not increase difficulty until the student is prepared to do so.

Certainly CAI is not the only approach to practicing with the new information and communication technology.

Due to the purposes these software should achieve in pedagogy we classify them as follows:

- *Interactive programs* which are specialized in acquiring knowledge/ new information. They establish a connection between the learner and the operating software that is under the control of the computer (*tutorial dialogue*) or of the student (*investigation dialogue*). The part of the teacher is played by *the tutor*, leading the learner every step of the way following a course pre-established by the designer of the software.

Another approach of the software specialized in investigation is that the student, respecting certain imposed rules collects deduces the work material (both theory and practice) necessary for him to complete the assignment. The path undertaken depends to a great extent on the learner, on his level of knowledge on his learning style.

- *Programs used for practicing.* They represent a manner of working with the new notions with the purpose of better understanding and for the formation of skills characteristic of the topic approached in the classical lesson. These help the teacher to carry out the practice activities, allowing each student to work at their own pace and to always have an appreciation of the correctness of the given answer.

The pedagogical value is reflected by the measure of integration in the realization of the learning activity. The pedagogical evolution of the exercises marks the formative leap, achievable from the exercise of automatisms (which has a limited sphere of action) to the exercise of operations, which employs a wider application field, perfectible at different levels of didactic and non didactic reference.

• *Programs employed for simulation.* They allow the controlled representation of a real process or system, through a model with analogous behavior. This offers the possibility to change some parameters and observe how the system behavior changes.

The experiment is a didactic method in which the action of direct research of reality in specific laboratory conditions predominates and can be carried out successfully with the help of simulation software.

4. Determining the appropriate software

The programs that integrate the basic notions of a field of study transmitted to the students through didactic means and materialized in an interactive approach student - software / program require from the student a mental processing of the information, fulfillment of some work tasks, and implicitly the achievement of the described curricular objectives specified in school curricula.

In order to analyze the usefulness of such a program, we go through several steps:

Step 1. In the first step, we must establish whether the respective software also carries a "Teacher's Manual", which must provide the following sections:

- 1) Word index in which the terminology is presented,
- 2) Generic introduction of the software (the teaching pursued objectives,
- 3) A list of contents, providing guidelines of structuring and teaching the material),
- 4) References.

The program software has to comply with the objectives and competency demanded by the school syllabus, for this reason an assessment of the software programs from this perspective is required. This is necessary because we can thus verify the effectiveness of the educational act and by achieving the goal, the student feels motivated and confident in his own strength.

Step 2. The tools employed by the program must also be evaluated. It has to be confirmed whether the aims of the lesson have been correctly formulated and if they determine what we need - the degree to which it weighs the achievement of the reference objectives / specific proficiency. If it is the case, the complete statement of operational objectives can be reexamined in order to discard any possible misinterpretation or ambiguity.

Step 3. The program must be characterized by the presence of a teaching strategy that through the student-software-educational interaction provides the student with information and work assignments adequate for producing learning.

Having the purpose of highlighting the existence and the standard of the procedure, the educator will launch the software /program and will compile a table with several columns: in the first column he will enter all the work assignments; in the second column each task is being analyzed, marking the type of action was requested; in the third column he will note his own observations.

The presence of a correction loop, the number of assignments on a certain component of disciplinary content, the progression of tasks, lead to the advancement of a model / theory / methods, targeting the approach on a certain theory / training model, the contribution to the development of creative potential, etc.

Step 4. Beneficiary oriented- it means the software must have a designated target group of students for which it was created taking into account the cognitive and intellectual capacity, social and psychological factors resulting in didactic differences.

That is why "the user teacher is obliged to check the congruence of the software with the characteristics of the student population in his school."(M. Featherstone, R. Burrows).

Step 5. Compliance to ergonomic factors "The degree of irradiation of current monitors is quite high, which requires preventive measures, especially in terms of the

student's position on the screen. For example: legibility of characters - a lowercase text forces the student to approach the screen.

Concerning the color scale, we can state that appropriately used colors can enhance the perception and processing of visual information. In average, it is established to reduce the number of colors, maximum three when editing texts. On the other hand it is not advisable to access on the screen simultaneously numerous windows, also to change the access place of a frequently used routine not also to have considerable length between the access location and the mouse.

If these factors are not taken into consideration, a number of health issues may appear. Some of them we can exemplify here:

- Strain injuries in wrists and hands (low blood supply to the nerves, tendons and muscles),
- Carpal Tunnel Syndrome (it occurs when the median nerve is squeezed at the wrist),
- Eye strain (looking at something for long periods),
- Back and neck ache (when one bends its back or neck to suit devices like the computer or cell phone).

Conclusions

The incorporation of information and communication technologies (ICT) in the teaching-learning-assessment process has become in the last two decades a priority of educational policies on all meridians of the world as new horizons open for the practice of education: facilitating the presentation of information, its processing by the student, the construction of knowledge.

NTIC is a combination of multimedia (MM) technologies that offer the user different possibilities such as image, sound, voice, animation, video, with hypermedia (HM). They combine multimedia with hypertext, making it easy to navigate smoothly between different types of data: text, sound, still images, animated images. In time, through the use of ICT, the role of the teacher in traditional education of source of information changes into that of facilitator of the educational act.

Using computers in educational training presents many advantages. One of these is on-to-one interaction with the student and receiving instantly an assessment to the answers elicited. A characteristic of major importance is allowing students to proceed with formal school training at their own pace.

A great applicability we can notice in subject matters that requires drill while providing time to the educator for class work so that, in the end, the teacher has more time to devote to each and every student. The software can also be used diagnostically helping to determine the student's problem and adjusting to improve the respective issue.

A computer software offers the advantage of privacy and individual attention encouraging the students and making them feel relieved of the possible embarrassment in case of providing an incorrect answer publicly or needing to take a slower pace when learning than the other colleagues.

Of course, there are also drawbacks to this implementation of computer software in the process of teaching. One of the biggest factors is the costs required for purchasing, maintaining and constantly updating the software. When buying computer programs for educational purposes one must take into consideration that it may or not suit the specific needs of the individual class or syllabus.

A template for a course ("courseware") can provide a general format for drill instruction and building tests presenting the possibility for individual particularities to be introduced later by the teacher or school computer science representative. In time, this type of

teaching tends to become repetitive and boring as tests and inquiries respect the same patterns for every school subject.

The idea of *in-house* program that is to create/ adjust the courseware to each and every student but this is not accessible because of the high costs involved, time consuming and advanced technical skills required that may not be at hand to every teacher.

Studies also show numerous physical and mental issues that ICT provokes in human beings. We have named a few above, in the previous chapter. Internet addiction/ computer addiction/ online addiction (IAD) is an impulse control disorder. Some users may develop an emotional connection to online friends and to activities they perform on their computers.

Social Media Addiction (social networking addiction) causes someone to have a compulsion to social media to excess (for instance, frequently looking for Facebook updates and verifying people's profiles for hours).

Video game addiction is when gaming becomes compulsive and the virtual world becomes more important than family, friends, and school.

The ergonomic problem has been discussed above; it mostly refers to the position one uses when working on the computer.

The wireless feature of most of our gadgets can bring about some health risks like-hypersensitivity, DNA disruption, cancer or birth defects.

There are side effect to using for long periods of time mobile phones as – blurry vision, headaches, tiredness, nausea, neck pain, memory loss, changes in metabolism and many more.

All in all, the new information and communication technology represents the future direction of our evolution transforming schools and classrooms, rapidly changing both the roles of students and teachers. The teacher cannot adapt to the need of the development of education in this information era if he can't assume the changing of his own role soon. Thus, educators should seize this opportunity, discard the old concepts of education, uphold the rules of education development and embrace the characteristics of this modern era, setting up ethical approaches to education and expertise, develop and cultivate the information and communication technology literacy and the advantages of using modern education technology to encourage research in the field of educational science.

By doing this, we can match the demands of modern educational technology and if implemented consciously taking into consideration every factor regardless its positive or negative nature, it will support and stimulate the creation of a bright future for students.

References

Book references

Duclos, Denis, *Société-monde: le temps des ruptures*, Ed. La Découverte – MAUSS, Paris, 2002;

Drucker, Johanna (ed.), *The virtualisation of Art Practice : Body Knowledge and the Engineering World View*, in *Digital Reflections: The Dialogue of Art and Technology*, CAA Art Journal Fall, 1997;

Featherstone, Mike, Burrows, Richard, *Cyberspace, Cyber-bodies, Cyberpunk. Cultures of Technological Embodiment*, Ed. Sage, London, 1996;

Hadzilacos, Thamasis, *La formation des enseignants et leur role dans la societe de communication*, in *Apprendre et enseigner dans la société de communication*, in Pierre Chauve, Gilles Ferréol, Adrian Neculau, Emil Paun, Thamasis Hadzilacos, Sonner Yildirim, Chronis Kynigos, Dan Potolea, Bernard Dumont, Stefan Aufenanger, Les Editions du Conseil de l'Europe, Strasbourg, 2005;

Kynigos, Chronis, Dumont, Bernard, *Standards pour les professeurs: preparation des professeurs a l'utilisation des moyens technologiques*, in Pierre Chauve, Gilles Ferréol, Adrian Neculau, Emil Paun, Thamasis Hadzilacos, Sonner Yildirim, Chronis Kynigos, Dan

Potolea, Bernard Dumont, Stefan Aufenanger, Apprendre et enseigner dans la société de communication, Les Editions du Conseil de l'Europe, Strasbourg, 2005;

Neculau, Adrian, La société de communication, un défi pour l'éducation et la cohésion sociale, in Pierre Chauve, Gilles Ferréol, Adrian Neculau, Emil Paun, Thamas Hadzilacos, Sonner Yildirim, Chronis Kynigos, Dan Potolea, Bernard Dumont, Stefan Aufenanger, Apprendre et enseigner dans la société de communication, Les Editions du Conseil de l'Europe, Strasbourg, 2005;

Web references :

Health Issues and ICT, <http://comp1220uwigroup.weebly.com/index.html> (website accessed 26th November 2020, at 17.00) ;

Hébrard, Christophe, Le village virtuel 3d. Introduction à une ethnologie des communautés virtuelles in <http://alor.univ-montp3.fr/cerce/revue.htm> (website accessed on 21 May 2018 and 15th November 2018 at 11.24), 2001;

Link Academy, <https://www.link-academy.com/e-learning-sau-modul-traditional-de-invatare> (website accessed on 26th November 2020, at 12.00) .