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Information and Communication Technologies and Education

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Abstract: The main goal of this article is the way of implementing the new technologies of informing and communicating in education. The advantages of using the new technologies in education are multiple: the reduction of time consumption, the possibility of adapting personal education programs, the possibility of fast accommodation with the changes and the new knowledge from various fields, extended interdisciplinary education opportunities. The didactic means have evolved and diversified over time from printed course support to learning programs with direct transmission or video recording on TV, to interactive multimedia information in real time with the help of the internet. In the educational field, the necessity for information and communication is realized through the registered progress that creates new opportunities and advantages in the training process. The informational and communicational technology impact over education is remarkable and it seems that this development will lead to positive effects, but will also lead additional issues. The process of replacing the real life with components, the aspects brought by the media can be called virtualization. In education, this phenomenon is manifesting when computers are used to substitute the learning experiences that were previously made in contact with the teacher or to give the chance to learn what in the past wouldn't have been available to anyone. The specificity of the management of these structures emerges from the particularities brought by the new realities: moving the focus of the broadcasting institution from the savoir determination to the educator's autonomy to conquer and build, through new technologies of communicating and informing. After some analysts, the introduction of new informational technologies in education has in subsidiary hidden ideologies, designed to position the social actors to the actual world. "The valorization of NTIC in the educational field dreams less of modernizing the school, than producing of a new conception of an institution where the finalities would not consist in the social emancipation of subjects, but in their incorporation in the technical, economical and capitalist complex." (Thellen, 2002). Through the codification and standardization systems, through the promotion policies and the advertising strategies, through the fair competition, through the subsequent legal frameworks, the NTIC promoters are creating bridges for access to benefits, which, far from being accessible to anyone, are creating and deepening inequalities. Because of that, one of the preconditions of virtualization of training is to reduce gaps in creating the premises of equal access to such instruments.

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1. Introduction

'Technology, through itself, does not change, nor improve the teaching or the learning. The key to successful introduction of technology in teaching and learning consists in according increased attention to the process management, strategy, structure and most important to the roles and skills[9]. Technology is just the tip of the iceberg in the process of education planning, serving just as a useful vehicle, among other vitals.

Integration of the computer and communication technology in the process of teaching-learning-evaluation, became in the last two decades a priority of educational politics on all of the world's meridians, whereas there are opening new horizons for the education practice: facilitating the presentation processes of information, processing it by the student, building the knowledge. The role of the teacher from the traditional education, the one of transmitting the information, can transform in the one of facilitator of learning through the rethinking of his own mission: creating an ambient (purpose, information, resource, strategy) which will allow the student to construct/develop the knowledge, with the help of computer and communication technology.

2. Theoretical Background

The first uses in the domain of assisted instruction by the computer were concentrating more on the verification of the knowledge, subsequent it started to appear complex softs, which encourage the active construction of knowledge, assure significant contexts to learning, promote reflection, free the student of a lot of routine activities and stimulates the intellectual activity. All these elements are modifying the teacher's activities both quantitative and qualitative. The educational process must be rethought. The teachers must learn to think otherwise related to cognitive psychology, to formulate differently the problems, with the emphasis on the routine intellectual activities. The didactic communication mainly targets the understanding, the teacher having an active role; he acts like a filter that selects, organizes and personalizes the information. To other areas, subjectivity cannot be avoided, it is even necessary, the teachers transmitting the students processed information. On the other hand, there is no total liberty in choosing the content; there must be followed the curriculum with the minim of mandatory content.

The education mission is to formulate the problems which outline the social horizon, to construct plausible hypotheses, to experimentally check and to prepare such solutions to the most suitable for that time. The

computerization of the education represents the reality of nowadays, to any discipline there can be used educational softs making possible the understanding of the phenomenon and of the knowledge. Unfortunately, in education the computers are used mostly for teaching and learning informatics, being used just quite a bit as instruments designed to easy the learning of other domains. However, science benefits of a better representation, being followed by foreign languages.

Through the main objectives of modern education stands the one of improving the teaching processes – learning using new multimedia technologies [1]. The new technology changes the world around us. High quality education is essential for the success of the labor market and could face an extremely competitive environment. Through constant and efficient use of these technologies in the process of education, the students have the possibility of gaining important abilities. Students nowadays are different from their parents and their grandparent generation. The majority of these, especially in the urban environment, already have as routine the use of internet and email, of text messages or social networks such as Yahoo or Facebook. This communication type makes itself felt in their learning style too. Even though the teacher uses or not the information and communication technology in class, the student will certainly use at home modern means of informing as support for homework [2]. Short or abbreviated communication of chat or text message type is already being felt at the standard grammatical and spelling level and is clear that the use of computerized and communication techniques at home creates inequalities between the students. Whether we want it or not, when the context of life changes, the way the pupil learns changes. Eventually, there is nothing new under the sun, so neither the modern technologies are something out of common. Papyrus and paper, chalk and book, projectors, toys and educational shows, every one of them have been seen as an innovation at the beginning. PC, internet, CD and the new mobile complementary technologies or wireless are just the newest proof of human creativity that we can see around us. Just as the other mentioned innovations, this can be assimilated in the pedagogical practice without affecting the fundamental teaching.

3. Argument of the paper

In the context of modern actual society, because of the fact that the entire world strives to change into an informational society, it appears the need that, even from the early age, the kids to be prepared for a beneficial

contact with the world they live in, through the computer. The modernization of the Romanian school assumes the adequacy of this to the challenges and the new demands of the socially-professional environment. Indisputable, the education cannot evolve outside this truth, as long as, in the briskly changing circumstances of informational technology, the frequent usage of the computer, of the new technology in the instructive-educational process, becomes a necessity.

School must keep up with technology, to understand and to anticipate the impact over the learning technique. Computers offer liberty, flexibility, but also individuality. Here is how modern technology, the computer, offers presentation possibilities or transmitting new content, in a new, attractive manner, through shapes, colors and movement, assures an interdisciplinary treatment, the possibility of individualization, incorporates a new base of demonstrations and exemplifications, and the didactic games can request the insight, distributive attention, creativity, contributing to developing some activities or affinities to some sciences.

Educational softs support the learning effort in an own rhythm and favors the administration of new evaluation forms and the aftermath of new recorded progress by the students.

The computer does not eliminate the role of the teacher, but riches the pedagogical tools in accordance with the finality of each education cycle, zooms in the learning quality and permits the inclusion of notions in a coherent information body, permanently enriching them. The computer can be used in the teaching process, completely or just in some sequences of the lesson. It does not replace the teacher, but it takes over functions from his didactic activity, such as educational; it can also take moments from the work of the student.

Digital technologies do not have to represent a simple adding in the educational plan. They have to be completely absorbed in 'the education service' at all the levels of the school system. Educational actors must be formed to face the changes, the uncertainty and the innovation. The higher complexity of today's schools and learning environments suggest the demand of realization in a new manner of activity in the educational field.

The computer is very useful both to the student and the teacher, but using it must be realized such that to quality improve the instructive-educational process, not to harden it. The computer must be used such that to watch the purchase of knowledge and forming of some skills that let the student to adapt to the tasks of a society in a permanent evolution. They need to be trained, oriented with certainty to be transformed; they will feel the urge to be trained as best to do the new types of profession. The deficiency to develop the ability to react to progress can result in alienation

and apathy. The teacher lives himself in a developing society, and fortunately, in the first line of change, so he will need to adapt and improve.
The use of computers in the educational process becomes a necessity in the conditions of the accelerated development of information technology. For the new generations of students and students, already accustomed to the avalanche of multimedia information, the concept of assisting the learning process with the computer is an intrinsic requirement. The computer is perceived in turn as a toy, a tool, an information resource. He has already used the computer for communication, information and training. Student-student interaction allows the teaching strategy to be diversified, facilitating student access to more extensive, logically organized, structured information, presented in different ways of viewing. In fact, not the computer itself as a physical object, including even a multimedia configuration, produces immediate pedagogical effects, but the quality of programs created, of computer products, integrated according to methodological efficiency criteria in the training activities. Pedagogical modernization therefore implies the existence of hardware, software and adaptive capacity, reception and capitalization in the instructional environment. The school must keep up with technology, understand and anticipate the impact on learning. Computers have been embedded in educational programs by providing them with more freedom and flexibility, as well as individuality in class. Using the Internet by students was an idea that caught fast. The natural affinity between students and the Internet has given rise to several projects aimed at, initiated and led by students. Learning that emphasizes participation is a type of training that gives the learner an active role in the learning process. Students, print their own rhythm and their own strategies. The way of learning is individualized, not standardized. As far as the effects of the computer in education are concerned, there are both positive and negative aspects. It is already known that in education in our country the informative aspect is prevailing in the detriment of the formative one. The implementation of computer science as a school matter and the introduction of computer technologies in the school environment must have the very effect of shaping. The goal is to teach students an orderly and logical thinking. The teacher creates an appropriate environment for the preparation of learning activities to facilitate the use of technology by learners for the purpose of learning and communicating. It is essential that all teachers be prepared to carry out such activities with their students. Be prepared to use the new technologies and know how they can support students' learning activities, they have become the competences of each professor's "repertoire". Teachers must be prepared to make students benefit from the benefits technology can offer. With the help of the

Internet, web development programs, audio/video recordings, computer graphics programs, online courses and educational software can be created for various disciplines. Virtual learning is an attractive and effective form of learning, training and information and has the advantage that the student can choose what, when and how to learn, the order of learning and the learning method.

4. Arguments to support the thesis

Introducing the Internet and modern technologies into school brings important changes in the education process. This act of learning is no longer considered to be the aftermath of the teacher's efforts and work, but the fruit of student interaction with the computer and the association with the teacher.

This change in the education system aims at the coming objectives:

- Increasing the adaptability of learning activities
- Developing conversation and particular skills

Accomplishing these goals depends on the degree of teacher training in computer use, the teacher's style, the number of students, their interests, knowledge and skills, the classroom ambient and the kind of programs used, the time the program integrates into lessons, synchronizing explanations with the sequences used, evaluation methods, workbooks.

Random use, beyond a precise determination, at a wrong moment, of the computer during the class leads to apathy, monotony, inefficiency of learning by not participating in lessons, failure to achieve the lesson's objectives, and repulsion towards this modern teaching-learning-evaluation process. Exaggerated use of the computer can lead to the loss of practical skills, computation and analysis of existence, to the deterioration of human relationships. Withal, the excessive individualisation of learning leads to the denial of the student-teacher discussion and the isolation of the learning act in its psychosocial situation. Matter is disjointed and atomized too much, and the mental activity of students is declined, and it is step-by-step.

From the studies undertaken, a series of interesting conclusions regarding the efficiency of the use of the educational software were revealed, among which:

- almost all research reveals the advantages of using computers compared to other methods;
- reduces the study time;
- attitude towards the computer is changing positively;

- the using of computers is more effective in science than in foreign languages;
- computer-assisted training is more effective as complementary training than as an alternative form;
- students who learn slowly and those who are left behind earn more than very good students;
- computer-based strategies are more effective at lower levels.

Our nature, the civilization we live in is in an endless movement. It is a lively environment in which human is constrained to move at an alert rate and always be on the run. [1]

Our humanity is a mixture of extraordinary promises and alarming perspectives, beneficial evolutions and uncontrollable technological bursts, by people depending on the direction of evolution: progress or self-destruction.

Several decades ago, education received in school could, in most cases, be sufficient for an individual's entire life, today the position is changing greatly.

Contemporary human education must go further the level of level-oriented education and move towards continuous education, capable of preparing the individual wherever they are, and unlimited in time.

Technological learning achieves new demeanours, becoming an elementalfactor of modern Romanian education, a curriculum meant to better accommodate the pupil into society when graduating from the school.

In school, the addition of the Internet and modernized technologies leads to important adjustments in the learning process. Thus the operation of training is no longer considered to be the aftermath of the educator's efforts and work, but the fruit of student synergy with the computer and the cooperation with the professor. This variation in the education scheme has pursued well-structured targets, namely:

- increasing the effectiveness of learning activities
- developing individual communication skills

Like any other learning method, this computer-assisted training has its conveniences and inconveniences.

As an advantage we can remember:

- Stimulating ingenious learning capacity, adaptable to conditions of rapid social change;
- Increasing the efficiency of coherent knowledge acquisition through the immediate appreciation of student feedback;
- Installation of the self-sufficiency climate and competitiveness;
- Developing visual perception;

- Consciousness of the fact that studied lessons will later find usefulness;
- Facility for rapid data processing, for calculating, displaying results, for creating graphs, tables;
- Introducing a cognitive, efficient, independent style of work;
- Ensures the choice and use of appropriate strategies for solving various applications;
- Providing a permanent feed-back, the teacher having the possibility to redesign the activity according to the previous progression;
- Develops thinking so that starting from a broad way of solving a dilemmathe student finds his own response for a concrete complication;
- Stimulating logical thinking in addition to imagination;
- Different pedagogical methods;
- The relational viewpoint is improved by creating a human and social relationship between the educated and the educator.

However, we also have inconveniences:

- Excessive use of the computer can get to the loss of practical, computational and real-life skills;
- Extreme individualisation of learning leads to denial of teacher-student dialogue;
- Random use of the computer without a precise purpose during classes can cause apathy and monotony;[2]

5. Arguments to argue the thesis

Free access to information and exchange of information brings many advantages and opportunities. On the other hand, this access has its disadvantages: too much information can be found on both sides of the legal and illegal border. Due to the current expansion of the Internet, control over these types of information is almost impossible.

6. Dismantling the arguments against

It is not to be understood that this area is censored. There must be only a signal that the responsibility for accessing such information is only ours. It is desirable to moderate the computer. Therefore, computer-aided instruction, like any didactic method, has advantages and disadvantages that must be known by the teacher to be exploited or avoided. First of all, using

the computer means saving time, yet it is expensive. Second, the computer simulates some processes and phenomena, but does not replace experiments or direct observation.

7. Conclusions

The continuous improvement of information and communication technologies, the increase of the use and the continuous adaptation to the requirements of the development of the society make these technologies an optimal environment for the transmission of information, a necessary but not sufficient condition for ensuring the success in the educational process. Education needs to integrate and adapt its offerings to support the new generation, updating its goals and resources to respond to new challenges and, at the same time, provide them with effective skills and tools for education. If changes in curricula, curriculum, organizational forms and material resources are relatively easy to implement and control, shaping human resources is a more difficult and lasting process. The influence of the computer on the educational process has therefore both positive and negative aspects. What is important is the role of the teacher who has to intervene for the efficiency of the training activity, to prepare "surprise elements" in order to keep the students' attention and to emphasize clearly the role of the computer: the auxiliary didactic middle in the teaching-learning-evaluation activity.

Research over the last few years in various countries across the globe has proved that the use of informative and communicative technologies in education greatly provides to improving student outcomes. However, many teachers, whether they prefer classical teaching methods or general reticence and disinterest to new technologies, reject the dynamics of hours and stimulate the student with the computer, the Internet and all other associated tools.

Therefore, computer-aided instruction, like any didactic method, has advantages and disadvantages that must be known by the teacher to be exploited or avoided. First of all, using the computer means saving time, yet it is expensive. Second, the computer simulates some processes and phenomena, but does not replace experiments or direct observation. Finally, perhaps most importantly, the computer leads to diminishing interpersonal and social relationships, risking the production of dehumanisation of the educational process. The student in front of the monitor, having the power to inform and understand, renounces the direct relationship with his or her colleagues or teachers, gives up communication.

Thanks to information and communications technology, new areas have been opened, unprecedented and revolutionary. These include learning, which has reached new ideals and has an astonishing progress.

References

[1]. Wills S, Alexander S. Managing the introduction of technology in teaching and learning. In: Nation D, Evans TD. (eds.) Changing University Teaching: Reflections on Creating Educational Technologies. London, UK: Kogan Page Limited; 2000: 56-72.

[2]. Wells M, Thelen, L. What Does Your Workspace Say about You? The Influence of Personality, Status and Workspace on Personalization; 2002.