The 8th International Scientific Conference
eLearning and software for Education
Bucharest, April 26-27, 2012
10.5682/2066-026X-12-136

DEVELOPMENT OF ICT EDUCATION IN ROMANIA

Helena Maria SABO
Faculty of Psychology and Science of Education, UBB, Sindicatelor Street. No.7, Cluj-Napoca, Romania,
E-mail: helena-maria.sabo@gmx.net.

Abstract: *Computerized education is a pedagogical strategy adapted / adaptable to the policy model education in the post-cultural model of society. At the operational level, the process involves the concept of assimilation and exploitation of new information technologies in activities designed to level the educational system in the context of specific activities. This are: computerized and "computerial" literacy; ownership of knowledge in the studied disciplines of profile information, making management education, application of computer assisted instruction, teaching method or as a special educational means integrated into any teaching strategy.*

Cumulative contributions show that important progress has been achieved in Europe, particularly in the development of ICT in education, while one is notable heterogeneity of practices and policies presented in agreement with different political priorities, ideals and educational funding.

In Romania, a characterization in general terms, might read: The educational system will undergo significant changes, as the main orientation and design of a system of permanent education.

In essence, computerization is not limited to teaching a new method, which would enter into the traditional methods. Through their social role, designated the concept of "computer culture" signifies transforming computerization of education system by education, not only as a form of organization, but also as contents.

Finally, we should mention that the importance and complexity of the process of computerization of education requires attention to the state level. It is appropriate to develop a concept of implementing information technologies in education that would reflect all aspects of the process, its directions and propose to exploit resources, that Romania has already today in an efficient way..

Keywords: *education, strategy, information, parameters*

I. INTRODUCTION

In Romania, a characterization in general terms, might read: The educational system will undergo significant changes, as the main orientation and design of a system of permanent education (Sakamoto, A. (1994).

In the XXI century the computer was definitely a profound impact on education – considers a Dutch researcher in applied pedagogy. Changing structure of the rich countries and poor countries will have an effect on knowledge sharing worldwide.

1.1. Information technology development in Romania

As routine tasks in any field of activity will be taken over by computers, the individual will have more free time to train. At this training will add competition increasingly harshness, which will require the use of leisure time for qualification. In this way, it will manifest an increase in the demand (and, in response, and supply) of education. All these developments will take place on a background of social transition marked by the first production values and information and intellectual labor improvement by integrating artificial intelligence.

New technologies for processing and transmitting information in all shapes of influence of the manner of communication and interaction. The issue in education is essential to proper understanding of these educational resources. Through the variety of contents and of informational support may be an effective tool in teaching / learning when they are subordinated to a clear teaching concept. It does not eliminate the role of teachers, but enriched pedagogical tools consistent with the purpose of each cycle of education.

1.2. Finding

Romanian school level can be shown "The computerization of university education" – developed by the Institute for Science Education – that the following **objectives**:

- Developing a conceptual model of the intersection of pre-university education – Information technology (excluding high schools and science classes) and tools necessary for its utility;
- Experimental verification of a set of tools for maximum effective teaching: educational software programs necessary for developing computerized: alternative textbooks, manuals auxiliary (teacher-students), other materials to stimulate learning, databases, etc. processed;
- Initiation and improvement of teachers in specific conceptual model adopted;
- Popularization of the project's success;
- Educational software.

Educational policy is the first awareness of the implications at all levels of the system and in the general plan for computerization of Romanian society, a conceptual model of computerization of the education system. This would imply a first discrimination between: a) IT= discipline education, b) information technology tool for enhancing the effectiveness of teaching and learning, and c) IT system management tool (Iosifescu, 2000). Each area has its specificity and involves preparation of a very large fan of specialists. Secondly, it should be understood that the computerization of education is a matter of educational policy, of course in the complex process of decision making preceding a large part of relevant information is obtained from IT specialists (particularly for directions b) and) should be taken solely on the basis of an "managerial-teaching" analysis (Government Program 2005-2008). The policy makers should consider more seriously the experience already gained in other geographic meridian and in the local research. In this connection, it is significant resistance to our (committee of discussion computerization defining future education. Structure of the informatization process shows synthetic training, the following manner: in preschool education: new technologies to accommodate activities with games level education: the systematic use (computer-assisted & instruction in some subjects, assessment systems for regulating the process of education) and accidental (in dependence on opportunities local open use applications, etc.). Secondary level education: open and general & science (for users) by object carrier (l. mathematics, etc.). As independent discipline and applications, development of applications, depending on the possibilities and interests of the local community, assisted by training computer and computerized management of the class; secondary level education (non-profile data): basic IT information independent profile in classes XI-XII; computer-assisted instruction with emphasis on individual training, orientation (self) formative assessment, training for specific activities profile / field of work. Elements characteristic of the Romanian higher education informatization.

School Computerization is seen as a process of integrating information technology in education. It is a highly complex and full of difficulties, which require a significant investment in time, leading technology, highly qualified staff, a clear policy on this, but the prospect etc. Study, the implementation of information technology in higher education, seeks primarily to provide a description and record of implementing specific elements of how the computers were introduced in schools and used by teachers and pupils. The results presented below are the fruit of an-inquiring type based on a set of questionnaires that were applied to a number of units of 59 schools, a seminar theological, a school of art and one agricultural) districts of Prahova, Dâmbovița, Iaşi, Cluj, Sibiu, Buzău, Timiş and Bucharest Municipality. He sought to determine:

- degree of endowment of specialized laboratories and procedures to ensure the service;
- ways of using computers, investigating the subjects, forms for use in training areas affected, the number of teacher users, number of students reported at the time of computers and access to every other use;

- degree of preparedness of teachers to use information technologies and needs in this area;
- prevailing attitudes of teachers towards the computer and finding the causes thereof;
- problems of administrative, technical and financial issues raised by the use of information technologies in schools;
- motivation to use computers in school and results obtained.

One of the main questions asked in the survey in school refer to access to computers and their use. Since 1990, a progressive increase has been seen connected to the presence of computers installed in schools, with the sudden increase from 1993 and more emphasized in the 1994-1996 periods, when the reform of education information has become a component of the program of education reform. Distribution facilities in time and type finds particular emphasis on facilities with computers and less on facilities and peripheral equipment required. However, over the past three years it is obvious the emergence of the trend of using faxes and connect to the Internet to facilitate communication between institutions or to meet the needs of information and documentation.

Another phenomenon that can be separated from the data collected is that of continuing allocation of obsolete equipment, such as HC's that were distributed by 1993 or XT's until 1995. This led to the existence of heterogeneous equipped laboratories, a situation that hampers their use for education.

In most schools, they are placed in specialized laboratories whose responsibility is taken by the specialist teacher. Lack of adequate space, small number of computers in schools, and their concentration in a single room, appropriate going through all the lessons with such specific needs make use of the computer for the IT-less disciplines to be less satisfied. To this, it is added the more or less looks of the administrative teaching room inventory that a professor or department of science which, to protect it, prevent its use by other teachers. In addition, teachers tend to hold such a class for groups of students to work on each of the computers available, even if it leads to splitting the class into two groups, some working on the computer and other engaging activities assimilation of knowledge. And under this situation is very varied and different from one school to another, the number of computers depending on the strategy of organizing a class of pupils, so that we can find situations where access to computers during the lesson can be achieved by working in groups every 2-5 people to 10-12. This causes, as the number of students distributed computer increases, the effective accessing the computer of each student decreases. However, the students in laboratories are less allowed outside class hours. From the data collected on the ground is clear desire and need for schools to be equipped with a larger number of computers. In this respect, although among endowment sources of primary school should be occupied only by the Ministry of Education and the school inspectorate, the institutions are directly involved in the computerization of education; it is shared with two other sources like SOROS Foundation and its financial efforts of schools, often supported by parents.

Current ways of using computers in schools. According to the survey conducted, it appears that secondary education in computers is used mainly for teaching and learning science. Instead, use computers as tools to facilitate learning of subjects such as science, languages and artistic disciplines is not very widespread. It may be noted, however, that among these IT less disciplines receiving help computer science occupies an important place, followed by languages which outperforms other disciplines, including the mother language. The causes of this state may actually consist of the specific content of certain subjects that may be more interactive learning techniques, present or absent logistics materials available to teachers, the degree of interest and specialized training of teachers etc. Among the forms of computer use in teaching disciplines of education, practical exercises net emerges from the other types observing wide scale while the possibilities of using computer in all links of lessons, from teacher demonstrations, knowledge testing and checking students in their own areas of interest (Masalagiu, 2004).

Computer aided although present in the data collected is to a lesser extent common acute lack of educational software market and high costs that it can achieve. The proportion of teachers of advance, who use a lot of computers in every day teaching activities represent about 3% of the 1900 school units in the probe, which was formed in the vast majority of science teachers.

Using computers at school for activities other than education is poorly represented. Small number of facilities has been detected that they are only targeted for instructive and less

administrative. However, the data collected can be seen that in this sector computers serve mainly service accounting of school libraries, laboratories, maintenance of records and to support the organization and conduct of examinations for admission and graduation. Office work in education, the direct activity of the educational class, such as lists of students, lists of notes, the presence, psycho-pedagogy schedules, creation of teaching materials, worksheets, etc. individually is almost non-existent. Improving staff and use of computers in school improvement staff, resulting primarily from better training during their studies and at work has the effect of raising the awareness of directors, other teachers and students to use computers, and determining to accept them (Zimmerman, 1990). Of course, the teachers are working more on computers, so they are more willing to integrate the activities of computer assisted teaching subjects they taught. Most teachers using computers in their teaching is to graduates of faculties of profile data, which facilitated access to such tools during their studies and they have offered at least the basic concepts and skills to use them during lesson.

Also, it may find that a part of them graduated from courses or science organized at national, regional or local level and supported by the ministry or the Soros Foundation, which proves the interest and concern in this area. However, the field work carried out during the application questionnaire could see lack of competence of teachers in using computers, there are even schools which could not benefit from the presence of such facilities, just because of this. Even teachers whose work already done with such a specific call for a better information in the field felt the lack of training in accordance with developments of the last time. Nearly 90% of those who have expressed opinions on the need to prepare teachers in computer use in school and have express the belief that it should characterize all the teachers of today. The most fertile period for acquiring knowledge, skills and mastery of skills for computer use and its lessons were identified, although not unanimously, by those interviewed as the studying period – when the basis of the profession is laid. Then the preparation obtained by training follows. Regarding the latter, teachers are concerned that they cover different areas. The first is a desire to know and use effectively in school programs offered for use, followed by the need for knowledge of the computer as a mechanism or problems related to programming. This proves the great interest more teachers have for teaching and for pedagogical aspect of computers.

The attitude of teachers towards the introduction and use of computers in school is positive, this means adhering to the teaching and learning are much more categorical among those who already use them because they already know the benefits of their use. Obvious effects that determine the use of computers in teaching and, above all, the school performance of students, receiving a longer period in which they work individually and in charge, is also very motivated to such activity and obtained a significant increase in the quality of their learning.

Also, the variable time which plays an important role in teaching suffers slight improvements, both students and teachers with a need for smaller tasks, and even for establishing feedback between them.

Favorable attitudes of teachers towards computer is determined largely by the awareness of current and future attractiveness and that it carries on the younger generation, thus looking to make the most of this inclination in order to achieve the objectives of education.

Attitude of resistance to new technology which is to be received bin schools is mainly the result of lack of teacher training in this area and of their lack of information about effective ways of using computers in lessons about the positive and negative but they assumed this task. Lack of confidence in modern technology, lack of training and the inability to assimilate new ways of working have arisen with the introduction of computer in the educational activity, often correlated with age, creates a state of immunity to what is new and may change during the natural course of things.

At the top of technical difficulties are placed flows arising from the moral and physical wear of computers, followed by the (so poor) some software too complicated or difficult to adapt to the curriculum. These are followed by deficient networks, the lack of viruses and supplies that cause teachers special problems.

Another factor that hamper the rapid diffusion of computers in schools is the lack of trained teachers who don’t know how to use this tool for the teaching and even less as there is not enough time to training assisted by computer (Smith and all, 1997). Finally, the most claimed by all teachers interviewed is the lack of financial resources that prevent the school and teachers from taking computers or having equipment, email, etc.

Almost entirely, teachers argue that there is need for a general introduction to computer school, which aims to trace and moves fast and that its implementation depends to a large extent on the existence of such policies in the current education law which is not too obvious.

II. CONCLUSIONS

1. Analysis of scientific sources and the experience of using computer in education show the depth of the problem of computerization. In essence, computerization is not limited to teaching a new method, which would enter into the traditional methods. Through their social role, designated the concept of "computer culture" signifies transforming computerization of education system by education, not only as a form of organization, but also as contents.

2. Interaction with computer components induces psychological restructuring of human activity. Being an instrument of intellectual activity, it influences the direction of computer, amplifies creative potential, expand the knowledge, accelerates the transition from them to the abstract sense and vice versa, restructuring human memory and stimulating the development of a special type of thinking – building algorithms or transformation of unformalized ideas in formalized structures.

3. The influence of psychological interaction with the computer is in the field of personality. Facts are recorded which show the impact on their image of "I" on accountability and creativity as essential structures of the personality, the emotional and volitional sphere of personality.

4. MECT together with any other scientific discovery, can pursue social both positive and negative. Analysis of the negative consequences outlined in the literature reveals their connection with human nature and more specific with less technical computing.

5. A review of the computerization of blockages, difficulties and obstacles to this process shows that they fall primarily on theoretical and methodological aspects of the problem. For example, states that affect the programming for the child thinking that it is the prototype of many cognitive tasks and enhance capacities to those subjects. This statement needs experimental confirmation, because the transfer of certain skills and knowledge is actually a special task for subject. The mature people sometimes do not perceive the inner meaning of problems. Moreover, the ability of solving problems is an area requiring specific knowledge. The same situation is found in the case of interest to the game computer, the role of educators, and influence on self-awareness. The need to implement educational technology in education does not require proof, but can not move in this direction without fundamental research in developmental psychology, social, and computerization of science education.

6. But one conclusion can be drawn from the material studied and that is the need to prepare teachers for the education of a culture of computers. We refer only to their technical training, which can be achieved relatively easily. The problem lies in changing representations about education, understanding trends retransforming of this process and their acceptance. A simple instruction with computer: every teacher needs to see discipline in a different structure to develop a new system of internal links. It is not easy, to see in a different light the relationship with the student, the training and other aspects of education. Basically, you need a new training specialist at a new pedagogy. Surely, human efforts are required, financial and intellectual resources too, but without well prepared teachers, the society risks society "to collect" only the negative consequences of computerization. Finally we should mention that the importance and complexity of the process of computerization of education requires attention to the state level. It is appropriate to develop a concept of implementing information technologies in education that would reflect all aspects of the process, its directions and propose to exploit resources, that Romania has already today in an efficient way.

References

[1] Government Program, 2005-2008, cap. V – education policy. Institute of Science and Education - Management education for educational institutions, Bucharest.

[2] Masalagiu, C., (2004), *Didactic teaching science*, Polirom Publishing House, Iaşi.

[3] Iosifescu, Ş., (2000), *Management education manual*, Prognosis Publishing House, Bucharest.
[4] Report Commission i2010, available on: http://ec.europa.eu/i2010
[5] Sakamoto, A., (1994), "*Video Game Use and the Development of Sociocognitive Abilities in Children: Three Surveys of Elementary School Students*", Journal of Applied Social Psychology, 24(1), pp. 21-42.
[6] Smith, R., Curtin, P. and Newman, L., (1997), "*Kids in the Kitchen: The Educational Implications of Computer and Computer Games Use By Young Children*", paper presented at the Australian Association for Research in Education Annual Conference, Brisbane, Australia.
[7] Zimmerman, B., (1990), "*Self-regulated Learning and Academic Achievement: An Overview*" Educational Psychologist, 25, pp. 3-17.