

## APPLICATION OF INFORMATION TECHNOLOGY IN THE REALIZATION OF TEACHING IN PRIMARY SCHOOL

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**Abstract:** The application of information technologies is becoming more and more frequent in everyday life and it provokes the interest of not only young generations as part of the primary process of education but also of students at later years of study at Pedagogical faculties who will become the constituent part of primary schooling after graduation. This paper deals with the increasingly frequent application of information-communication techniques (hardware, software) in the education development representing one of the primary tasks in all the countries. Nobody asks whether we should or should not apply ICT in education, the question is only how to do it. The goal of all those involved in this process is the same, only their ways differ. Their visions are similar, but their missions are different. The main issue is the fact that different countries are at different levels of education development, either concerning technical equipment or educational structure.

**Key words:** ICT, primary education, hardware, software, interactive teaching.

There is no doubt that education is one of the key segments in inducing and supporting the society development from two aspects. First, this segment should lead the promotion of information society and the creation of professional and competent personnel enabled to meet the challenges and needs of a society based on knowledge. There is no development and education based on knowledge without appropriate qualifications of people who should actively participate in the usage of the benefits offered by them. Second, the quality of the educational process is directly dependent on the ICT application in it.

The development directions and the education goals are directly influenced by the level of the infrastructural equipment of educational institutions. The current project will no doubt improve the equipment both from the aspect of the needed hardware and software and from the aspect of connecting to the Internet. However, we should take into consideration the fact that investing only into equipment is not a good policy and it does not provide good results. Therefore technical equipping of educational institutions must be followed by the existing educational institutions but with new organization and new managing of the educational processes. The essential goal is to maximize and optimize the usage level of equipment belonging to different categories of potential participators: teachers, pupils and students.

There should be an appropriate education of the teaching staff for the realization of those goals. This process should not comprise only teachers of informatics but equally all those who are supposed to apply information

technologies in the realization of the teaching process. The process range should comply with the technical equipment of the educational institutions. In order to have better coordination and provision of unified and appropriate quality we should first define the appropriate standards (domestic or European) for various teacher profiles. Because of their nature, these measures are especially significant in primary education.

Introducing ICT in education in lower classes of primary school is a logical step. Special attention should be paid to teaching subjects for various target groups. Particular emphasis should be put on ICT application for performing work tasks, and not for a goal in itself. A part of education could be realized by using methods that are provided by this technology: distant learning, open web-based courses in Macedonian language, in Albanian language etc.

### **PRESENT AND FUTURE**

The approach of the Republic of Macedonia to an economy based on knowledge through sustainable development of information society. In order to realize this mission a number of priority goals must be fulfilled, such as: digital literacy of the entire teaching staff in primary education, their using ICT in the teaching process, and that every pupil in primary education begins to acquire his/her digital literacy. All schools should be provided with sustainable approach to the Internet, they should be connected to local intranet systems, pupils should have the opportunity to use a multi-medial computer, and finally there should be support services and educative multi-medial resources on the Internet. The initiative to apply ICT in education means appropriate training and courses for teacher concerning educative usage of technology and its application in teaching.

School and universities must support the idea of becoming local centers for acquiring versatile knowledge available to all. Appropriate training should be provided for all teachers, a suitable program should be established, and measures for encouraging teachers to have real benefit from digital technology during their lessons should be taken. The initiative for the ICT application in education emphasizes the creation of suitable conditions for the development of content, services and learning environment which should be very developed and relevant for the education the aim of which is the strengthening of cooperation and dialogue simultaneously, at the same time improving the connections among all the participants in this process of ICT application in primary education (universities and schools).

### **TEACHING PROCESS IN PRIMARY EDUCATION**

At first informatics was introduced into primary education as a facultative subject. It was taught in a small number of primary schools that had computer laboratories or several computers and informatics teachers. Since the beginning of XXI century a new curriculum is being realized according to which the subject informatics is taught both as a facultative and as an optional subject. Textbooks have been prepared for the first curriculum for the subject informatics in primary schools (realized with 1 lesson facultative teaching). As for the second curriculum,

using computers for teachers of other subjects, helping with making lists for salaries and for signing documents, and many other things for which they not paid or rewarded in any way. For the sake of comparison, information engineers who work in economic firms or state institutions have greater or even double salaries.

There is no organized advanced professional training that is compelling in these times of fast and extreme changes in the field of informatics. So far, informatics teacher have been left only to their own enthusiasm for advancing in their job. At present no faculty educates teaching staff for informatics subjects in primary school. The teachers who teach optional subjects in a small number of schools graduated at the Faculty of Natural Sciences and Mathematics, Department of Informatics, or are electrical engineers who graduated at the School of Electrical Engineering, Department of Computer Technique and Informatics. But, they are very few. Most teachers who teach in primary schools graduated mathematics or mathematics with informatics (previous studies), and there are some students who graduated at pedagogical faculties. The teaching staff for informatics teachers in secondary schools is taught exclusively at the Faculty of Natural Sciences and Mathematics, Department of Informatics, and, from this school year, at the newly formed University in Stip where beside the students who graduate at the Faculty of Informatics, in future it plans to open specialist studies for training staff at the Pedagogical faculty in cooperation with the above mentioned Faculty of Informatics. Graduated students will acquire the title of graduated teachers of informatics in primary education.

### **NEW MODELS OF TEACHING AND LEARNING**

We are living in the times when every pupil uses the services of computers and communication technology, when the Internet is a tool for getting information.

Modern education should be organized in such a way that pupils are able to acquire solid information literacy and culture. However, the young population still gets a great amount of information and skills from attending courses or by means of self-education at home on their personal computers (no discrimination in choice, sequence and systematization). All this is being realized without any control by persons who are professionally, methodically and pedagogically-psychologically prepared. Primary education is considered to be the first and main place where pupils will acquire basic knowledge of informatics, and that the primary education curricula should follow the trend of informatics knowledge. The reason why young people prefer courses outside school compared to regular teaching is the good equipment and realization of effective teaching in small-sized groups whose number does not exceed the number of computers in the classroom. So we recommend the introduction of new models of teaching and learning about how to use ICT. These models should be introduced in the early schooling years. The new models should intensively use the possibilities of IC technologies such as: computers, computer equipment (printers, scanners, cameras, memory devices, video projectors, interactive boards, local and intranet computer nets, Internet and all its possibilities – looking over, searching, downloading, communication, educational software for all subjects, virtual classrooms, etc.).

- Concrete measures that should be taken in order to solve the previously noticed problems in the educational process are:
- Equipping all primary schools with more computer laboratories and accompanying communication equipment containing a video projector,
- Equipping all primary schools with interactive boards (in every classroom),
- Connecting and maintenance of the Internet in all schools,
- Forming an educational net by connecting all school among themselves and with the Ministry of Education and Science,
- Forming a service shop (IT administration) or engaging firms for the maintenance of the computer and communication equipment in schools,
- Forming classes that will attend informatics subjects,
- Introduction of compulsory informatics subjects into the curriculum for primary education,
- Freeing teachers of informatics from additional activities in schools related to their informatics skills: helping colleagues, administration, maintenance of computer classrooms, etc,
- Permanent advanced training of these teachers by means of frequent courses and seminars organized by appropriate teachers' faculties,
- Forming a center for help and training of teachers at all faculties that educate teachers where the latest achievements in informatics and teaching informatics would be presented,
- Compulsory usage of computer laboratories for teaching other teaching subjects,
- Using these classrooms for other educational goals (preparation of homework, competitions, additional teaching with weaker pupils, school-related activities),
- Assessment of teachers and granting appropriate titles,
- Compulsory creation of a website for each school containing all the necessary data and educational profiles of the school,
- Creating or providing educational software in mother tongue for all subjects in primary and secondary education,
- Creating new curricula for informatics subjects in primary and secondary education.

### **CONSLUSION**

In order to develop education we need to provide an appropriate availability of public official information by means of a variety of communication resources, especially the Internet. The establishment of laws based on information availability and protection of public data, especially in the sphere of education, has been induced. Promoting research and development through ICT availability is becoming an everyday practice for all, including primary education. Education and other factors should create constant multi-purpose target points of development by using various information-communication resources. These points should have enough capacity to be able to provide help to all the participants of the educational process: educational institutions, pupils, teachers, educational administration, with special accent on respecting and inducing exchange and build-up of knowledge.

Education should prioritize the application of ICT and the inducement of research among the factors of the educational process with additional possibilities offered by various software models, their creation, and inclusion of the so called open source and free of charge software, all this aiming at enabling teachers and later pupils to realize their activities through applying new technologies. Primary education must actively promote the usage of ICT as a basic working tool for the realization of teaching even the subjects that do not belong to the sphere of informatics. It is also necessary to induce research of ICT application including the innovative forms of creating webs, adapting the ICT infrastructure, tools and applications that help make ICT available to everyone, especially in primary education. This should also induce the creation and development of digital libraries with free availability of textbooks, books and information. Let us not forget the Internet that plays an important role at communication-information level.

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