

APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN SCHOOL EDUCATION

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Abstract: This work shall present a part of the analyses of research results dealing with the presence of modern ICT in school lessons, the level of the teachers' acquaintance with modern ICT and the use of computers in school activities, with the aim of getting insight into the teachers' experiences, their level of ICT knowledge as well as of the other media available in teaching, the advantages of Internet services, and finally providing the answer about whether teachers demonstrate to their students all of the advantages of Internet and modern ICT.

Key words: Internet, education, ICT

I. INTRODUCTION

INFORMATION and communication technologies make it possible for students to gain knowledge and grow their working skills. To achieve this, they need to know and understand the techniques, technologies and ICT.[1] ICT is potentially the most powerful tool in all institutions that provide education.[10] The choice of multimedia presentation and the access to computers, especially the Internet, allows immediate access to a large field of information from all over the world. [2] Computer is a powerful tool and used along with additional equipment and software, it may serve to replace a great number of teaching aids.[11] The goal of introduction of ICT as a school subject in school education was to enable acquaintance with main ICT concepts, helping growth of interest for computer use in everyday life and studies, as well as the encouragement to put it to creative usage.[3] The data from research indicated a very low level of computer literacy of those adults that are particularly important for the growth and development of children's personality, such as their parents and teachers with whom they come into contact at all levels of education.

II. RESEARCH USAGE ICT IN EDUCATION

This research has been conducted in order to establish the facts based on which it will be possible to assess the level of use of information and communication technology in system of education.[4] Two hundred educators participated in this research. They were divided into groups of ten preschool teachers, twenty elementary school teachers (ten for young and ten for older children), as well as ten high school professors. Both genders and all ages were present. The teachers interviewed are

situated exclusively on the territory of Kosovo and Metohia.[5] Descriptive scientific method has been applied in the analyses of specialized bibliography, in collecting, analyses and interpretation of results.[13] Interview has been the main technique applied, providing insight into teachers' feelings when comes to practical implementation of ICT and the available media, all with the aim of providing the answer to what is needed for the education enhancement.[6] Data analysis has been performed with the use of statistical calculation method in order to assess the presence of certain elements shown in percents. The results were demonstrated in tables as well as graphically, followed by a relevant comment. The results may be beneficial for the Ministry of Education, school administration, headmasters, as well as teachers themselves in order to test the level of modern teaching tools' application, and whether they encourage the students in ICT and Internet application and advantages, and regarding the possible shortcomings of existing media.[7]

Most of the research participants are highly educated (90% of them), 9,5% possessed the Master degree, while only 0,5 were high school graduates (2 teachers). When it comes to working experience, most of them have been working for 5 to 10 years (45%) and 10 to 20 years (38%). Only 5% of the interviewed have been working for less than 5 years.

These results have been anticipated as such, bearing in mind the fact that most of teachers interviewed have long working experience, which usually means they are less willing to accept technological advancement, suspicious to any change. More than half of the interviewed (55%) use the Internet in their leisure time.

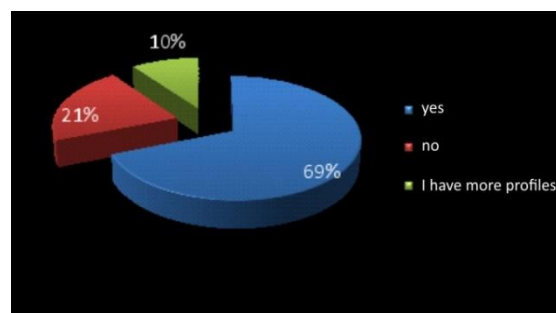


Fig. 1. Having a profile on one of the social networks (teachers).[6]

A considerable number of the teachers interviewed holds a profile on at least one of the social networks, while 10% holds more than one. 69% of teachers holds at least one profile, while 10%- even more. Only teachers with everyday access to the Internet (22 of them, or 55%) have answered to this question.

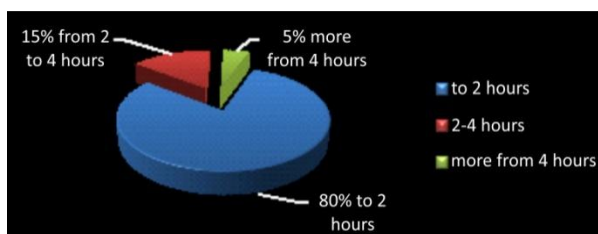


Fig.2. Amount of time the teacher spend on the Internet in their leisure time.[6]

Most teachers spend 2 hours on the Internet, the number of those who spend 2 to 4 hours on the Internet is considerably lower (15%), while only 5% spend more than 4 hours.

TABLE I: INTERNET USE MOTIVES. [5]

Word search	Newspaper, cooking recipe reading	Spientific research	Film, music	Social networks
5%	15%	5%	10%	65%

This question provided disturbing answers. As much as 65% educators use the Internet for social networking, while only 5% of them aim to knowledge enhancement, while 15% use the Internet to be well informed, and 10% for entertainment. With this in mind, teachers have to be additionally skilled in order to lead their students to computer literacy, as this poses one good way of how children could spend quality time in front of a computer.

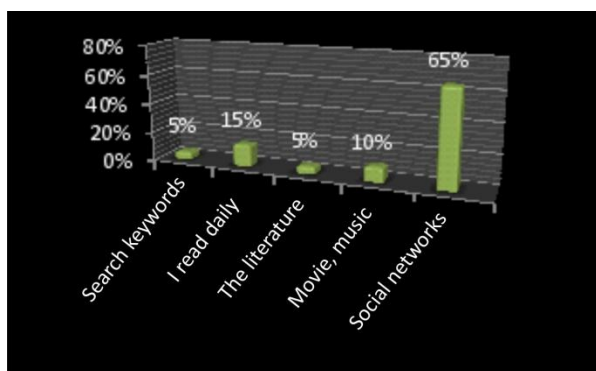


Fig. 3.- Internet use motives.[3]

Most teachers have attended some form of computer literacy course (55%), and the need of those who haven't seems to be urgent.

Data for this problem is in accordance with the previous one: as much as 96% of the teachers seems to be aware of the need for further education in this field, which at least serves to prove the presence of awareness. Although, there is a great chance of the answer being merely socially correct.

The fact that as much as 96% of teachers consider the introduction of ICT into curriculum as obligatory, although again, this may be another socially correct answer.

TABLE II: PRACTICAL ADVANTAGES OF COMPUTER TECHNOLOGY IN THE PROCESS OF TEACHING.[6]

Observation lessons only	Sometimes	Often
45%	45%	10%

Only 10% of the teachers use modern computer technology in everyday lessons, while the rest applies it only when it comes to exceptional lessons.

These results have been confirmed by the following research conducted by the ICT Professors' Association of Serbia in 2009.[14] The research aimed at computer application, and 113 elementary, high schools and gymnasiums on the territory of Republic of Serbia participated. 4818 teachers or 79% of all of the interviewed chose to take part. Percentage of the teachers interviewed is shown in the following graph.

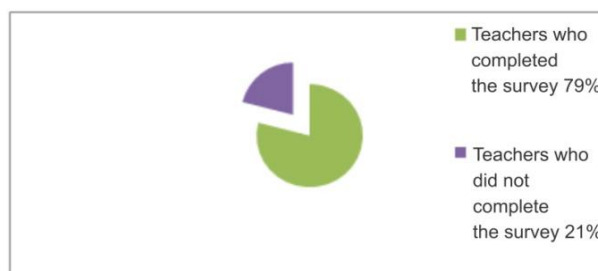


Fig. 4. Graphic illustration of the number of teachers who took part in the questionnaire in percentage. [13]

The results are as follows. The number of computers used in lessons is 2184. the rest of the computers, of all 3952 of them, is used in the libraries, in pedagogues' and psychologists' offices, in teachers' office for lesson preparation, for electronic mark records, etc. Looking at the percentage, 54,35% of all the existing computers in all schools, hasn't been applied as means of education.

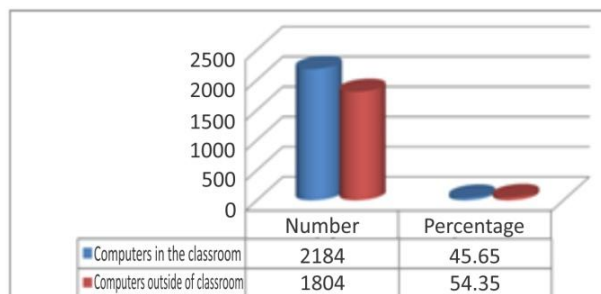


Fig. 5. Graphic chart displaying the number of computers in teaching [13]

According to the results, it is evident that the number of computers used for extracurricular activities greatly exceeds the number of those used in teaching.[9]

The availability of additional technical equipment is displayed in both table and a graph.

TABLE III: TABLE OVERVIEW OF ACCESS TO ADDITIONAL EQUIPMENT IN TEACHING [1]

Type of equipment	Number	Percent
Printer	113	100
Projector	88	77,87
Digital graphoscope	15	13,27
Scanner	95	84,07
Web camera	29	25,66
Home DVD	25	22,12
Source of electrical charge connection	42	37,16
Network equipment	73	64,60

1900 computers is actively used in all the lessons covered by curriculum. 579 computers is in extra-curricular use, and the remaining 1473 have not been connected to the Internet. According to the results, it is evident that schools are generally well equipped when it comes to technology. Scanners and printers are mostly present. More than half of available computers are not in use, which is a serious omission, as they may serve to provide useful information and a fun way of acquiring knowledge.

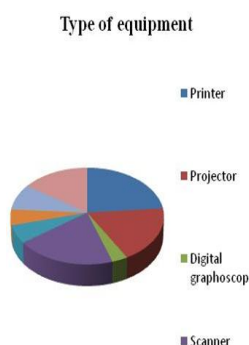


Fig.6.Number and types of additional equipment in schools.[1]

III. TEST RESULTS OF TEACHERS

The study included 200 teachers, organized into uniform groups made out of fifty teachers, hundreds of employees in elementary schools and 50 teachers employed in secondary schools. The groups were equal by age and gender. Most of the respondents were with a higher university education (90%), 9.5% with a specialist or master degree, while only 0.5% of employees had a secondary education (2 teachers). Regarding the years of work experience, most of them had been working between 5 and 10 (45%) and 10 and 20 (38%). Less than 5 years is only 5% of respondents. Data from table are expected, bearing in mind that the majority of the interviewed teachers are with longer work experience. This leads to the assumption that they do not tend to accept innovations in teaching and the use of modern computer technology, and they are the ones who show resistance to ICT and the Internet and the use of computers in teaching. As for the teachers, 80% of them spend up to 2 hours on the Internet, 15% from 2 to 4 and

only 5% more than 4 hours. Here it should be noted that 55% of them do not use the Internet at all in the spare time, but only 110 respondents are of the total sample.

Slightly more than half respondents (55%) use the Internet in the spare time, Table IV. Quite a large number of examined teachers have an account on at least one social network, while 10% of them have even more profiles. Since many of the teachers have an account on social networks, it is necessary to explain the ways in which offenders can disturb and persecute the victims on the Internet. In fact, offender can set up the site which is threatening for the victim or encourages others to contact, disturb, or otherwise violate the victim. These may be sites that allow group text, video or audio interaction (chat) in real time, which is usually organized around specific topics related to politics, religion, dating and more. These sites may be public and available to all users or private with limited access. "In order to disturb the victim the offender can send messages with disturbing content visible to all site users, and can discover the victim's personal information to other participants and thereby encourage others to harass via the Internet, telephone or similar".[8] The survey showed that 69% of teachers have at least one account, while 10% have more. Only those teachers who do access to the Internet in the spare time answered this question (110, or 55% of the total sample).

TABLE IV: USING THE INTERNET AND SOCIAL NETWORKS [14]

Using the Internet and Social Networks		Owns an account on a social network		
Yes	No	Yes	No	I have more than one profile
55%	45%	69%	21%	10%

Most of them spend the leisure time up to 2 hours on the Internet, while fewer spend 2 to 4 hours (15%), or more than 4 hours (5%), Table V. In the case of teachers, the majority of those who use the Internet in their free time (65%) use the Internet for social networking. Insignificant number read literature (5%), while 15% of them read the daily press, and 10% watch movies or listen to music, Table VI. Disturbing data were obtained in response to this question. As many as 65% teachers use the Internet for social networking, while only 5% of them stated that they search terms or read literature.

TABLE V: TIME SPENT WITH THE INTERNET DURING THE DAY [14]

Up to 2 hours	2-4 hours	More than 4 hours
80%	15%	5%

TABLE VI:THE REASONS FOR USING THE INTERNET IN THE SPARE TIME [14]

Searching term	I read the daily papers, recipes	Professional literature	Movies Music	Social networks
5%	15%	5%	10%	65%

Most of the teachers attended a course on computer literacy (53%) and the need to educate additionally those who didn't is evident, Table VII. The data are consistent with data obtained in the analysis: as much as 96% of teachers think that they need some other form of training in computer literacy, which indicates that at least there is awareness of the need for education. However, there is a possibility that the respondents answered in the preferred way.

TABLE VII: TRAINING IN INFORMATION LITERACY [14]

Attending a course on computer literacy			He believes that he needs more training in computer literacy	
Yes	No, and I do not want	No, but I would like	Yes	No
53%	4%	43%	96%	4%

Encouraging fact is that even 96% of respondents believe that it is necessary to introduce Information Technology as a compulsory subject, except that once again there is a possibility that it is a socially desirable response, Table VIII.

Table VIII: Information technology should be one of the compulsory subjects in primary and secondary schools [14]

Yes	No
96%	4%

Only 10% of respondents regularly use SRT in teaching, while others use sometimes or for the experimental class, Table IX.

TABLE IX: USE OF MODERN COMPUTER TECHNOLOGY IN TEACHING [14]

Only for the experimental class	Sometimes	Often
45%	45%	10%

IV. CONCLUDING REMARKS

The results have shown a considerably low level of adults' computer literacy. Playing the role of parents and teachers, their main responsibility is to help growth of children's personality, as they are the ones whose help is available on all the levels of education. The number of teachers who use Internet services to advance their expertise is considerably low, and greatly lags behind the number of teachers who visit social networks. Only 15% of the adults keeps track of what pages on the Internet are most visited by their children.

Teachers use the Internet far less than their students do. 5% of them needs the Internet services for professional advancement (scientific updates and word search), while 65% is rather interested in social networks. On the other hand, not many teachers are able to use information and communication technologies and the Internet during lessons presentation, only 10%, though as much as 96% of them states the need to educate themselves in new technologies. Many teachers consider ICT introduction as a compulsory part of curriculum in

elementary and secondary education (96%) a good idea. Children nowadays develop and create their own value system as well as socialize while playing computer games, using various Internet services, ranging from social networks to free TV and film watching sites. Computer literacy of teachers is of great importance, as well as their ability to use modern ICT and the Internet in lesson presentation. Computer literacy is a capability of effective use of computers and software tools. Communication technology provides means for every teacher to update their knowledge of the world, and thus prepare for their lessons more thoroughly, according to modern demands. The general hypothesis of this research is that low level of computer literacy inevitably effects the amount of time spent and types of activities children favour when on the Internet. This research has also proven the hypothesis that low level of computer literacy of the teachers has also a negative effect on children's Internet activities. The adults Internet users, who should serve as a model of proper behaviour, fail to be aware of the dangers lurking on the Internet. And even when they do not, they fail to apply adequate measures of protection. ICT teachers are the leading ICT experts in their respective schools. They are expected to provide innovations in ICT activities. It is of highest importance to keep the teachers motivated when it comes to furthering their knowledge. If it should happen that ICT teachers put a stop on their ICT knowledge updating, one could say that "time has passed them by". True purpose of information technologies in education will only come to surface with spotlight to its unique characteristics as a school subject, as an important part of teachers' and their students' interest.

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