

# A CONTRIBUTION TO THE RESEARCH OF CHILDREN PROTECTION IN USE OF INTERNET

*Nebojša Denić, Zoran Nešić, Miroslav Radojičić, Dalibor Petković, Mališa Stevanović*

Preliminary communication

The main aim of this paper is to study the current state of children protection in their use of the Internet. The research includes a consideration of the factors influencing the protection of children from various aspects, based on the test results of the children, their parents and teachers. The results suggest a pronounced influence of the specific social circumstances of the environment in which the research study was conducted. With regard to the education of children, where schools and teachers play an important role, the paper highlights the importance of professional and methodical applicable IT education at educational institutions, the use of new information technologies in education, with an emphasis on the threats on the Internet, security on the Internet, the prevention of violence on the Internet, the rights of children on the Internet and the rules for a safe Internet use in relation to age. This study was carried out on the example of a case study.

**Keywords:** *children protection; Internet; IT education; technology*

## Prilog istraživanju zaštite djece u korištenju Interneta

Prethodno priopćenje

Cilj ovoga rada je analizirati trenutačno stanje zaštite djece u korištenju interneta. Istraživanje uključuje razmatranje čimbenika koji utječu na zaštitu djece s različitih aspekata, na temelju rezultata ispitivanja djece, roditelja i nastavnika. Rezultati ukazuju na izraženi utjecaj određenih društvenih okolnosti okruženja u kojem je provedeno istraživanje. S obzirom na obrazovanje djece s važnom ulogom škola i nastavnika, u radu se naglašava važnost stručnog i metodički primjenljivog IT obrazovanja u obrazovnim institucijama, korištenje novih informacijskih tehnologija u obrazovanju, s naglaskom na prijetnje na internetu, sigurnost na internetu, prevenciju nasilja na internetu, prava djece na Internetu i pravila za sigurno korištenje Interneta u odnosu na dob. Ovo istraživanje je provedeno na jednom primjeru studije slučaja.

**Ključne riječi:** *internet; IT obrazovanje; tehnologija; zaštita djece*

## 1 Introduction

Computer literacy is essential in today's world [1]. Computer literacy is the ability to use computers and information technology efficiently with the skills which should cover all levels, from elementary to advanced problem solving. Decisions and actions that shape the context in which children grow up used to be much more different from one community to another. Today, some parameters are largely common to all countries. One of the reasons is access to the Internet, which allows content without restrictions and in any location. The Internet has always been favourably regarded as informative, convenient, resourceful and capable of producing economical, as well as social, benefits [2]. On the Internet, there are thousands of organizations dealing with some of many ways of children exploitation. Many of these organizations operate legally because they are legally registered companies, humanitarian and non-governmental organizations with a legal identity. Their presentation to the public clearly indicates the service they provide, including various types of assistance, ranging from humanitarian material donations through psychological assistance to vulnerable groups, all the way to job offers with good and safe wages. However, their real goals of action in the form of the various types of the exploitation of the victims are often hidden under the cloak of attractive opportunities for a better life. On the other hand, there are anonymous sites backed by the criminal groups acting completely illegally, whereas the third group consists of the individuals who have direct access to the victims in order to achieve their goals. The common feature of these "hunters" is their incredible "honest" performance, full of emotion, understanding and compassion, towards the potential victim.

For the adequate understanding of the "cyber persecution" term, it is necessary to give a determination of persecution, as well as an interpretation of the similarities and difference in relation to conventional persecution. In a narrow sense, stalking is considered as a "vision of interpersonal violence and includes behaviour that involves two or more incidents of harassment, causing fear, alarm or disturbance by means of three ways: through phone calls or letters, waiting in front of home or workplace and destroying the victim's property" [3]. A broader and more comprehensive determination of persecution includes two or more actions which the persecutor directly, indirectly or in another way performs through some action, method, device, or resources in order to follow, monitor, observe, threaten or communicate with a person or come in contact with the property of the respective person [4]. "Cyberspace is also a social space created by merging two aspects of communication, such as: communication through computer networks (Computer Mediated Communication – CMC) and business communication supported by computer systems (Computer Supported Collaborative Work – CSCW)" [5]. The issue of the misuse of cyberspace has been analyzed from different aspects by many authors:

- A study of harassment perpetrated via the Internet [6]
- Criminal law in Cyberstalking [7], where cyberstalking means the use of the internet or other electronic means in order to stalk or harass an individual, a group or an organization.
- Law and technology resources [8]
- The typology of cyberstalkers [9]
- A study of stalkers [10].

Some authors accept the broader determination of online stalking, so cyberstalking is considered as a conventional view of persecution, harassment in the unconventional cyber space, which is done by means of information and communication technologies [11–14]. In this case, we are talking about cyberstalking as "a continuous use of the Internet, e-mail or other forms of electronic communication for disturbance of an individual or group of individuals" [12]. On the other hand, some authors [15] believe that cyberstalking should be regarded as an independent, isolated problem, which may not be narrower than the notion of persecution. Although a large number of the cases of cyberstalking take place by means of computers and the Internet, as the largest media of information and communication technology, it is not justified to ignore the telephone network and various tracking and monitoring technologies. In accordance with the broader definition of cyberstalking, special attention is paid to the following forms: cyberstalking through the phone technology, cyberstalking through the technology of tracking and monitoring the victim and cyberstalking through computer networks and the Internet [15].

It is important to note that the element of causing a reasonable fear in the victim is also necessary for the qualification of cyberstalking [16]. It is also very important to define the terms "online" harassment and persecution. Many eminent authors suggest that [16] there is no unique definition of online disturbance and cyberstalking, nor is there at least a clear distinction, either, because they are related terms, which alternately intertwine with each other.

The research study carried out in this paper is aimed at improving the knowledge of cyberspace crime and persecution, as well as the association between the amount of time and the types of activities for children on the Internet, and the level of the computer literacy of adults (parents and teachers, from pre-school to secondary education). As information technology tries to do its best in providing maximum security, the user's awareness plays the key role [17]. This research was carried out on a case study of Kosovo. The fact that a large number of children living in Kosovo, in specific life conditions, keep finding their "salvation" in the virtual world – the Internet, in the "virtual safe environment", considering that they are completely "safe" there and that they can surf the Internet unlimitedly, that they are free to act, initiated the emergence of this research. Children in a real environment do not frequently have an opportunity to socialize and make friends with their peers and therefore enter into friendships online. However, an increase in crime among children and a lack of security and protection have resulted in the fact that parents consciously let their children use the Internet without restrictions. Therefore, the necessity for protecting children on the Internet, which includes the physical, psychological and moral safety of minors in the course of their daily activities on the Internet (surfing, chatting, using social networks, online games), is imperative. Protecting children implies the imposition of setting strict rules for children's Internet adventures in order to protect them from the inappropriate content, cyberbullies, identity thieves and child predators. The aim is to protect children from unsuitable content, the negative effects of the

Internet and to also raise the level of awareness and knowledge of how virtual reality affects children and how far, safely and without consequences, they could go in the digital world.

## 2 Materials and methods

The presented study included 800 children classified into 4 age groups, 200 in each, from 5 to 7, 7 to 11, 11 to 14 and 14 to 18 years of age. The groups were uniform in the gender, the place of residence, as well as the socio-economic status. All the children were from complete families. The children responded to the 16 questions posed in the children's questionnaire. A total of 320 parents of those children responded to the 17 questions posed in the adults' questionnaire. The sample of the parents is representative in relation to the population. The study included 150 teachers, 50 teachers in pre-school education, 50 elementary-school employees (25 teachers) and 50 high-school employees. This group of the respondents is representative and the questionnaire contains 11 questions. The questionnaires designed specifically for the purposes of this study were used in the investigation. The respondents answered anonymously. For processing the data, the actions of descriptive statistics were used, since the subjects answered the questionnaires specifically designed for this research. As they were not given the standardized tests, univariate analysis was impossible to apply. All the significant results are shown in the tables. The specific objectives of this study are as follows:

- 1) To determine whether there is a significant difference between the amount of the time that children and adults (parents and teachers) spend on the Internet or not.
- 2) To identify the types of the activities for children and adults which are dominant on the Internet.
- 3) To determine parents' awareness of dangers coming from the Internet.
- 4) To determine by which methods parents control the time their children spend and the activities their children carry out on the Internet.
- 5) To determine the level of the teachers' understanding of dangers on the Internet.
- 6) To identify the existence of the awareness of the need for acquiring additional knowledge in the field of teachers' information literacy.

The general hypothesis of this paper is as follows: The low level of computer literacy negatively affects the amount of the time that children spend and the activities that the children perform on the Internet, as well as the understanding of protective measures when working on the Internet and the use of ICT.

The aim of the paper is also to present the analysis of the following assumptions:

- Children spend many more hours on the Internet than adults.
- The adults who use the Internet are unaware of the dangers lurking on the Internet.
- The absence of the suitable parental control of the time their children spend and the types of the activities their children perform on the Internet.

- The inadequate level of the computer literacy with teachers also affects children’s behavior on the Internet.

In the paper, the correlation of some individual parameters of the research results is analyzed. In this sense, the measure of correlation is defined as the measure of the connection between the individual elements of the research. The correlation values are presented by Pearson's correlation coefficients. The calculated correlation coefficients allow an insight into the correlation between the individual groups of different age structures with the results of the research.

### 3 Results and discussion

#### 3.1 The test results of the children

By doing research in this paper, the group of 800 children were examined in the four age categories: 5 to 7, 7 to 11, 11 to 14 and 14 to 18 years of age. In each age category, 200 children were examined. The examined groups were uniform by the gender, so in each one of the age groups there were 100 boys and 100 girls, Table 1. This data is related to the fact that the vast majority of the children live in rural areas and that a very small number of the children live in the so-called urban areas. It is indicative that 2.5 % of the surveyed children live in urban areas and 97.5 % in the village. According to the data obtained in the examination, the respondents generally have no ADSL connection to the Internet.

**Table 1** The test results of the children

The number and percentage of children respondents			The number and percentage of children respondents according to gender			The number and percentage of children respondents according to their place of residence		
Age	No	%	Gender	Nor	%	Place of residence	No	%
5-7	200	25	M	400	50	Village	790	97.5
7-11	200	25	W	400	50	City	10	2.5
11-14	200	25	TOTAL	800	100	TOTAL	800	100
14-18	200	25						
TOTAL	800	100						

Tab. 2 enables us to conclude that the number of the hours spent on the computer during the day increases with age. The fact that, at the time of the rapid development of their intellectual functions, up to 25 % of the children from 7 to 11 years of age spend even more than 4 hours a day on the computer is of particular concern. Regarding the gender, there were no statistically significant differences in the use of computers during the day. When asked how many hours per day they spend on the computer, the children responded differently, their answers being divided into the three categories: up to 5 hours, 5 to 10 hours, more than 10 hours. The majority of the respondents said that, if they had unlimited time to be on the computer, they would spend 5 to 10 hours (66 %) daily; 23 % of them would spend up to 5 hours and 11 % of the respondents would spend more than ten hours. When this matter is concerned, there is no statistically significant difference in terms of the gender. Generally speaking, children spend more time on the computer than adults, parents and teachers. To spend more than 4 hours a day on the Internet is typical of 5% of the children from 5

to 7 years of age, 25% of the children between 7 and 11 years of age, 20% of the children from 11 to 14 and 14 to 18 years of age. It is possible to indicate a high difference in the Internet use between the three treatment categories: the children, the parents and the teachers. Based on the calculated correlation coefficient values, the connection between the time spent on the Internet during the day and the individual age groups can be seen. The most pronounced and directly dependent on the children’s age is an increased use of the Internet in the interval form 2 to 4 hours.

**Table 2** The time spent on the Internet during the day

Time	5-7 year (%)	7-11 year (%)	11-14 year (%)	14-18 year (%)	Correlation coefficient
Up to 2 hours	85	50	45	35	-0.87
From 2 to 4 hours	10	25	35	45	0.98
More than 4 hours	5	25	20	20	0.50

Tab. 3 allows us to conclude that the time spent on "chatting" on the Internet significantly increases with age, the time dedicated to playing games decreases, whereas there is an insignificant increase in the use of the Internet for term searching. This is an extremely worrying fact, but this information is not surprising, if we bear in mind the fact that the popularity of social networks has increased significantly in recent years. Another area which we also paid greater attention to is the most common type of the activities performed on the Internet. Younger children generally spend their time in playing games, and the time spent on "chatting" significantly increases with age, while the time reserved for term searching somewhat slightly increases. The correlation coefficients indicate a significant correlation between the individual age groups of the respondents with the most common forms of the Internet activity. Looking, searching, chatting is in a direct relation with the individual age groups. Such results are quite in line with the expectations and are indicative of an increase in the respondents’ interest in various forms of the Internet activity in accordance with age.

**Table 3** The most common form of the Internet activity, by the age groups

Age	Just looking (%)	Searching term (%)	Chatting (%)	Blogging	Play games (%)	Watch videos, cartoons (%)
5-7	-	-	-	-	80	20
7-11	-	12	33	-	55	-
11-14	11	13.5	46.6	-	21.7	7.2
14-18	7.3	16,8	67.4	-	4.5	4
Corr. coef.	0.81	0.86	0.96	0.00	-0.99	-0.51

As a child grows older, his use of the Internet for the purpose of social networking also grows, so that as early as in the age group of 11 to 14, 70 % of the children have at least one account on one social network, while in the age group of 14 to 18, 75 % of the children have multiple accounts. In analyzing an account on one of the social networks, the situation is as follows when children are concerned: at the age of 5 to 7, no child has a profile; from 7 to 11 – 22 % of them have a profile; from 11 to 14

years of age – 70 % of the children have at least one and 30 % of them several profiles, whereas 25 % of the children aged 14 to 18 have one and other multiple profiles, Tab. 4. A huge difference in the number of the children and the adults who have a profile on one of social networks is evident, which means that primarily parents and teachers have no insight into what children do online and which dangers lurk on the Internet, which is easy to notice in the following charts. As expected, the number of the respondents who added to their profiles as "friends" the people they did not know in their real life increases, which indicates the reduced awareness of the dangers of the Internet. On the basis of the research results, it is possible to conclude that there is a connection between the use of social networks and the age structure of the respondents and a significant increase in the multiple accounts on various social networks. For this reason, the correlation between the increase in unknown persons among the "friends" and the age structure of the respondents is an especially significant data.

**Table 4** An account on any of the social networks

Age	Account at any of the social networks (%)			Unknown persons among the "friends" (%)	
	No	Yes	Multiple accounts	No	Yes
Year					
5-7	100	-	-	-	-
7-11	78	22	-	80	20
11-14	-	70	30	65	35
14-18	-	25	75	10	90
Corr. coef.	-0.95	0.54	0.95	-0.04	0.95

In the first two age groups, from 5 to 7 and from 7 to 11, none of the respondents has access to the Internet on the mobile phone. Later, the situation changes: 40 % of the children aged 11 to 14 use the Internet on their mobile phone. As much as 90 % of the respondents of 14 to 18 years of age use the Internet on their mobile phone, Tab. 5. Based on the results of the research it is possible to see a very significant correlation between different access to the Internet and the age structure, primarily the Internet access on the mobile phone, as well as the time spent on the Internet.

**Table 5** Internet access

Age	Internet access on the mobile phone (%)			Visit to Internet cafe (%)				Time spent with the friend and the visit to the Internet (%)		
	I have no	I have, not used	I have and use	Never	Once a week	Several times a week	Every day	No	Sometimes	Often
Year										
5-7	100	-	-	100	-	-	-	0	-	-
7-11	100	-	-	100	-	-	-	10	75	15
11-14	35	25	40	10	90	-	-	15	55	30
14-18	-	10	90	-	-	80	20	-	20	80
Corr. coef.	-0.98	0.64	0.96	-0.95	0.29	0.79	0.79	0.93	0.06	0.95

In this case, none of the respondents in the first two age groups visits Internet cafes. At the age of 11 to 14, 90 % of the respondents visit the Internet cafe once a week. At the age of 14 to 18, 80 % of them visit it more than once a week and 20 % do that daily.

The time spent with a friend is also implemented with the Internet: In the lower age group, the proportion is lower (none of the respondents from 5 to 7 years of age, about 75 % of those between the age of 7 to 11 "sometimes"), whereas in the older age group, there is a growing proportion (55% of those from 11 to 14 years of age "sometimes", 30 % "often", and at the age of 14 to 18, up to 80 % are often on the Internet, spending time with a friend of theirs). These data are worrying, because

children replace real communication with virtual and their leisure time is organized by the Internet.

The number of "hacked" profiles increases with age, which is consistent with the previous data, indicating a number of strangers among the "friends", as well as on multiple profiles with increasing age, Tab. 6. In this sense, it is important to note that through online databases and the online agencies trading with data, offenders can find personal information about the victims. Often, there are available court documents and statistics, such as the base of prisoners or views of individual cases. For example, in the district of Montgomery, Pennsylvania, the court even published the names and addresses of the victims and their children, who are subject to protective action [15].

**Table 6** Hacking profiles and electronic violence

Age	I had my profile hacked (%)		One of my friends had his/her profile hacked (%)		I know what the term "electronic violence" means (%)		Exposure to some form of "electronic violence" (%)		
	Yes	No	Yes	No	Yes	No	Yes, once	Many times	Never
Year									
5-7	-	-	-	100	-	-	-	-	100
7-11	15	85	5	95	5	95	-	-	100
11-14	54	46	85	15	68	22	66	14	20
14-18	76	24	98,5	1,5	88	12	30	65	5
Corr. coef.	1.00	0.01	0.97	-0.97	0.98	-0.23	0.68	0.89	-0.96

The results obtained in this IT issue in the above table only seem encouraging. There is a possibility that the children gave acceptable answers and a possibility that, recognizing the concept at the same time, they do not know what it actually involves, or how to ensure protection from "electronic violence". The data in this

table are highly questionable, if one takes into account the fact that children are not sufficiently acquainted with the forms of "electronic violence". An increase related to age is evident and alarming. The presented results reflect a pronounced connection between the hacking of profiles and electronic violence, which markedly increases with

the children's age. The correlation coefficients indicate a direct connection between the hacked profiles that the respondents personally experienced, or other friends of theirs, and also that they have been exposed to some form of electronic violence many times.

Some authors point out that "Indirectly, on-line harassment includes, but is not limited to, spreading rumors about the victim on various Internet forums, the signing of the victims on unwanted on-line services, allowing information about the victim on websites for online dating or sending messages to others in the victim's name" [18]. Based on the research that was aimed at carrying out the typology of offenders, taking the relationship between the victims and the offenders as the research criterion, the four types of cyber stalkers can be distinguished, namely: revengeful, patient, romantic and a cyber stalker who works in a group [9].

### 3.2 Test results of parents

Since the study included children from complete families, in order to group them more evenly, 320 parents (the mothers and fathers of the tested children) responded to the parents' questionnaire, Tab. 7. Our data indicate that the sample is representative of the parents. The majority of the respondents have secondary education (78 % on average). Fewer respondents were with primary education (16.25 % on average) and with acquired higher or university education (5.75 %). The degree of the fathers covered by these investigations confirms that the sample is representative. Most of them have secondary education (81.25 % on average), whereas a smaller number of them completed primary education (13 %) or higher/university education (5.75 %).

**Table 7** The parents' qualifications by the age groups of children

Age	Primary school (%)		Secondary school (%)		Higher / High School (%)	
	Mother	Father	Mother	Father	Mother	Father
5-7	20	18	75	77	5	5
7-11	12	10	80	88	8	2
11-14	17	15	75	75	8	10
14-18	16	9	82	85	2	6
The mean value	16,25	13	78	81,25	5,75	5,75
Corr. coef.	-0.16	-0.58	0.51	0.13	-0.45	0.51

**Table 8** Parents' employment

Age of children	Mother (%)			Father (%)		
	Yes	No	Seasonal	Yes	No	Seasonal
5-7	28	57	15	85	2	13
7-11	12	88	10	75	3	12
11-14	35	60	5	95	-	5
14-18	35	55	10	65	5	30
The mean value	27,5	65	10	80	2,5	15
Corr. coef.	0.62	-0.40	-0.61	-0.35	0.34	0.54

The majority of the mothers are not employed (65 % of them on average), whereas a smaller number (27.5 %) receive financial compensation (from the labour market), or for seasonal work (10 %). Regarding the fathers' employment, the situation is different in relation to the mothers'. Only 2.5 % of them do not work, seasonal jobs are done by 15 %, whereas up to 80 % of them are either

employed or receive a material compensation from the labour market, Tab. 8.

As expected, a very small number of the parents use the Internet (only 17.5 %) and during the examination, the majority of them made comments that they used it mainly because of the nature of their work, Tab. 9. The research study indicates that 92 % of the parents spend up to 2 hours on the Internet in their spare time and only 8 % between 2 and 4 hours. We should bear in mind the fact that the answers to this question are given only by those parents who do use the Internet, not by all of the respondents, but by 17.5 % of the total sample of 320 examined parents (i.e. only 56 individuals). Regarding the accounts on social networks, 38 % of the mothers and 41 % of the fathers have an account on some social network. Regarding the parents, only 13.5 % have an account on a social network. Only those parents who do use the Internet (17.5 % or 56 individuals out of the total sample) answered this question.

**Table 9** The use of the Internet and social networking

	Use the Internet (in the spare time) (%)		Owns an account on a social network	
	Yes	No	Yes	No
Mothers	10	90	38	62
Fathers	25	75	41	59
AVERAGE	17.5	82.5	39.5	60.5

Also, a small number of the parents spend their free time on the Internet (92 % on average, up to 2 hours), whereas a significantly smaller number of them (8 %) spend between 2 and 4 hours, Tab. 10.

**Table 10** The time spent on the Internet in spare time, excluding the time on job

	Up to 2 hours (%)	2 to 4 hours (%)	More than 4 hours (%)
Mothers	96	4	-
Fathers	88	12	-
AVERAGE	92	8	-

Regarding the parents, most of them read daily newspapers or search for recipes on the Internet (42.5 %), watch movies or listen to music (17.5 %) and read literature (only 3 % of the parents), Tab. 11. The data in Tab. 11 demonstrate that none of the parents questioned search terms on the Internet, and most of them use it to read daily newspapers, prescriptions etc. (42.5 % on average). 37 % of them do not use the Internet, 17.5 % listen to music or watch movies, whereas only 3 % read literature. Correlation with the level of education is clear. The previously stated results show the devastating results, especially if the information about how much time children spend on the Internet, which is extremely alarming, is taken into account. Only 10 % of the parents control the time, whereas the others responded negatively, but 52.5 % of the children (the average of all the age groups) spend up to 2 hours a day on the Internet, 30 % on average spend 2 to 4 hours, whereas 17.5 % of the children spend more than 4 hours a day.

Several questions in the parents' questionnaire were aimed at examining whether, to what extent and how the parents control their children's activities on the Internet. The data show that only 15 % of the parents control the websites on the Internet that their child visits. However, if

we take into consideration the fact that a very small number of the parents use the Internet for leisure (only 17.5 %), it is then likely and possible that a desirable response is given to this question. Only 17.5 % of the parents discussed the dangers of the Internet with their

child at least once. The next data shows a very low level of the computer literacy of the parents: only 10 % use some software to filter and restrict access to web-addresses, Tab. 12.

**Table 11** Using the Internet in spare time

	Searching term	I read the daily newspapers, recipes (%)	Professional literature (%)	Movies, Music (%)	I do not use Internet (%)
Mothers	-	35	2	10	53
Fathers	-	50	4	25	21
AVERAGE	-	42.5	3	17.5	37

**Table 12** Control of the time the child spends on the Internet

	Control of time the child spends on the Internet (%)		Control of sites that child visits on the Internet (%)		Talking with the child about the dangers of the Internet, at least once (%)	
	Yes	No	Yes	No	Yes	No
Mothers	15	75	25	75	20	80
Fathers	5	95	5	95	15	85
AVERAGE	10	85	15	85	17.5	82.5

The data on the control of the websites that a child visits on the web are in agreement with the previous ones, which means that those who control the time their child spends on the Internet also control his/her activity on the Internet. The data on a conversation with the child about the dangers on the Internet are similar to the previous ones, but suggest that there are those parents who think that conversation is sufficient. The control of the children's Internet activity is non-existent (17.5 %), while the percentage of those who do not even talk to their children about this topic is devastating – 82.5 %.

In this sense, it is important to define the notion of the so-called cybercrime. According to the Council of Europe's Convention on Cybercrime, the "cybercrime" term means: any activity directed against the confidentiality, integrity and availability of computer data, computer systems and computer networks, as well as the misuse of computer data, systems and networks [19]. Although almost half the respondents recognize this term, their awareness of real dangers on the Internet and the need for familiarizing their children with them is missing. Accordingly, cybercrime involves a variety of criminal activities, including attacks against computer data and systems, attacks related to computers, content or intellectual property. On average, only 10 % of the parents use some software to filter and restrict access, the web-addresses visited by their children, Tab. 13.

**Table 13** The recognition of the "cybercrime" term

	Recognize the term "cybercrime" (%)		Use the software to filter and restrict access to web addresses (%)	
	Yes	No	Yes	No
Mothers	35	65	5	95
Fathers	45	55	15	85
AVERAGE	40	60	10	90

The characteristics of the disturbance caused by using e-mails are by many authors described in the following sense: "Some software, for example Evidence-Eliminator.com, advertised as a means to erase or eliminate the traces of the evidence of an unauthorized use or the theft of other people's data" [20]. "When using

e-mail in order of harassment, cyber stalker creates and sends a text, graphics, video or audio messages with threatening, frightening, or otherwise disturbing contents to the victim" [12]. "E-mail may be sent to the victim in order to start or renew a connection or due to threats" [11].

Not one single parent uses e-banking, whereas shopping over the Internet is done by 15 % of the fathers and 4 % of the mothers, Table 14. Here, it is important to define the concept of the identity theft. "The digital Identity theft of victims means unauthorized use of the victim's e-mail address to sign in in order to use different services." [13].

**Table 14** The use of E-Banking

	Use of E-Banking		Use the online shopping	
	Yes	No	Yes	No
Mothers	-	100 %	4 %	96 %
Fathers	-	100 %	15 %	85 %
AVERAGE	-	100 %	9.5 %	90.5 %

**Table 15** The recognition of the SPAM term

	Recognize the term SPAM (%)		Open SPAM message (%)		
	Yes	No	Always	Never	Sometimes
Mothers	5	95	9	11	80
Fathers	20	80	20	35	45
AVERAGE	12.5	87.5	14.5	23	62.5

When asked whether they were familiar with the SPAM term, we obtained the following data: only 5 % of the mothers and 20 % of the fathers recognized the concept of SPAM, Tab. 15. This question was asked as the so-called "trick" question so as to demonstrate the right understanding of the above term. The respondents who answered "always" or "sometimes" are among those who do not really know the meaning of this term, thus making the total as high as 77 %. This corresponds with the previously obtained data, indicating the very low level of the computer literacy of the parents and a lack of the awareness of the dangers of the Internet.

### 3.3 Test results of teachers

The study included 200 teachers, organized into the uniform groups consisting of fifty teachers, the hundreds of employees at elementary schools and 50 teachers employed at secondary schools. The groups were equal by age and the gender. The majority of the respondents were with higher/university education (90 %), 9.5 % with a specialist or master degree, whereas only 0.5 % of the employees had secondary education (2 teachers). Regarding the years of work experience, most of them

had between 5 and 10 (45 %) and 10 and 20 (38 %) years of service. Only 5 % of the respondents accounted for less than 5 years of service, Tab. 16.

The data in Tab. 16 are expected, bearing in mind the fact that the majority of the interviewed teachers have a 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 that they are

those 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 hours and only 5 % more than 4 hours. Here, it should be noted that 55 % of them do not use the Internet at all in their spare time, and they only account for 110 respondents out of the total sample.

**Table 16** The use of computers by teachers

Level of qualifications (%)			Years of service (years) (%)				Use of computers (%)		
Secondary	High	Spec / master	Up to 5	5-10	10-20	More than 20	Rarely and unwillingly	Just for the job	Often and willingly
0,5	90	9,5	5	45	38	12	30	25	45

Slightly more than half the respondents (55 %) use the Internet in their spare time, Tab. 17. Quite a large number of the examined teachers have an account on at least one social network, whereas 10 % of them even have more than one profile. 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 their victims on the Internet. In fact, the offender can set up a website which is threatening for the victim or encourages others to contact, disturb, or otherwise violate the victim. These may be the websites that allow a group text, a video or audio interaction (chat) in real time, which is usually organized around specific topics related to politics, religion, dating and more. These websites may be public and available to all users, or private ones 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" [12]. The survey showed that 69 % of teachers had at least one account, whereas 10 % of them had more than one. Only those teachers who do access the Internet in their spare time answered this question (110, i.e. 55 % of the total sample).

**Table 17** Using the Internet and Social Networks

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 their leisure time on the Internet for up to 2 hours, whereas fewer spend 2 to 4 hours (15 %), or more than 4 hours (5 %), Tab. 18.

**Table 18** The time spent on the Internet during the day

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

**Table 19** The reasons for using the Internet in the spare time

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

When the teachers are concerned, the majority of those who use the Internet in their free time (65 %) use the Internet for social networking. An insignificant number of them read literature (5 %), whereas 15% of

them read the daily press and 10 % watch movies or listen to music, Tab. 19. The disturbing data were obtained from the responses to this question. As many as 65 % of the teachers use the Internet for social networking, whereas only 5 % of them stated that they searched for terms or read literature.

#### 4 Conclusion

The data obtained from this research study indicated a very low level of the computer literacy of those adults that are particularly important for the growth and development of the personality of a child, such as their parents and teachers, with whom they come in contact at all the levels of education. A very small number of the parents generally use the Internet in their spare time. Most parents in the sample group have only secondary school education. The employment status had no significant effect on the willingness of the parents to control the time their child spends and the activities their child performs on the Internet. Out of those who use the Internet, a very small number adheres to the professional literature, whereas significantly more people access social networks. Only ten percent of them use software to filter and restrict access to web-addresses, 15 % control the websites where their child has access to the Internet.

In their spare time, the teachers also access the Internet, but to a much lesser extent than their students do. A total of 5 % of them access the Internet to find literature or search for terms, whereas as many as 65 % of them prefer to visit a social network. On the other hand, a small number of them "often" use contemporary ICT in teaching (only 10 %), although many advocate the need for additional education in this field (96 %) as many think that Information Technology should be studied in primary and secondary schools as a compulsory subject (96 %).

All this leads to the conclusion that the general hypothesis in this study is confirmed: The low level of computer literacy negatively affects the amount of the time children spend and the type of the activity children perform on the Internet. The specific hypotheses were also confirmed: Children in all age categories spend many more hours on the Internet than adults do. The adults who use the Internet and who should be a model for the behaviour of children are not aware of the dangers that lurk on the Internet. Even when they do know potential dangers, they still take no adequate measures in order to protect their children. The research confirmed the hypothesis that the low level of computer literacy of the

teachers also adversely affects the activities of the children on the Internet. From this entire analysis, it is clear that the problem of the excessive and inappropriate use of the Internet by children is multifactorial determined and that it should be addressed from various aspects, unifying knowledge from different scientific fields. The consequences of this behaviour are very intensive and time-consuming. Of course, further research is still needed in this area in order to raise the awareness of both children and adults, as well as the impact on their behaviour.

On the basis of relevant global literature in this area, it can be concluded that the protection and safety of children on the Internet is a complex phenomenon that needs to be considered independently of and in isolation from other phenomena, which primarily requires a multidisciplinary approach to prevention and the provision of assistance and support and treatment of offenders. It is a highly complex and dynamic phenomenon that depends on the development of information and communication technologies and involves a continuous and systematic approach to the study, because the methods of online harassment and persecution change from one hour to another, expanding the virtual space, building new connections with the on-line reality.

Faced with a real lack of security in the real world, parents intentionally let their children use ICT and the Internet without restrictions, considering that in the "virtual world" they are absolutely safe, although a number of them are familiar with the dangers involved while working on the Internet. Therefore, it is necessary that some basic and general recommendations should be given to the Internet users for preventive purposes.

Since children's education is an important role played by schools and teachers, it has become an imperative to have professional, methodical and applicable IT education that encourages the spreading of "computer literacy" at educational institutions by means of using new information technologies in education, with a focus on the dangers and traps that threaten the Internet, security on the Internet, the prevention of violence on the Internet, the rights of the child on the Internet, the rules for a safe Internet use in relation to age and so on.

The priority of professional development programs for teachers should be a training plan for teaching and non-teaching staff in the application of modern education-information and communication technologies in order to protect children on the Internet, improve and enhance the quality of teaching. Therefore, future directions in cyber-safety will need to permeate every single layer of the community.

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**Authors' addresses*****Nebojša Denić***

Alfa Univerzitet, Fakultet informacionih tehnologija  
Palmira Toljatija 3, 11070 Beograd, Serbia  
denicnebojsa@gmail.com

***Zoran Nešić***

University of Kragujevac, Faculty of Technical Sciences  
Svetog Save 65, 32000 Čačak, Serbia  
zomes2002@yahoo.com

***Miroslav Radojčić***

University of Kragujevac, Faculty of Technical Sciences  
Svetog Save 65, 32000 Čačak, Serbia  
miroslav.radojicic@yahoo.com

***Dalibor Petković***

University of Niš, Pedagogical Faculty in Vranje,  
Partizanska 14, 17500 Vranje, Serbia  
dalibortc@gmail.com

***Mališa Stevanović***

Alfa Univerzitet, Fakultet informacionih tehnologija  
Palmira Toljatija 3, 11070 Beograd, Serbia  
malisa.stevanovic@gmail.com