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## RELATIONSHIP BETWEEN DEMOGRAPHIC AND ENVIRONMENTAL FACTORS AND KNOWLEDGE OF SECONDARY SCHOOL STUDENTS ON NATURAL DISASTERS

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**Abstract:** The subject of quantitative research is to examine the connection between demographic (gender, age) and environmental factors (family, school and media) and knowledge and perceptions of students about natural disasters. Bearing in mind the orientation of the research design on determination of character and strength of relationships of demographic and environmental factors with the knowledge and perceptions of students about natural disasters, research has explicative goal. The authors use the method of interviewing high school students to identify demographic and environmental factors associated with the knowledge and perceptions of students about natural disasters. The study included 3,063 students of secondary schools in the city of Belgrade. Results suggest the existence of links between gender, success achieved in school and education of parents and the knowledge of students about natural disasters. The results also indicate that the education of students at school and within family does not affect the knowledge, but affects their perception on natural disasters. Bearing in mind the geographical space of Serbia, the study is based only on the Belgrade region, so the findings can be generalized only to the population of students in this area. Research findings indicate potential ways to influence students to raise level of knowledge about natural disasters to a higher level. Given the evident lack of education about natural disasters in Serbia, the study results can be used for policies of educational programs, which would contribute to improving the safety of youth culture.

**Key words:** natural disasters, high schools, knowledge, perception, demographic factors, environmental factors

### Introduction

Depletion of natural resources, destruction of forests and fertile soil have caused intense and dramatic endangering of nature and survival of mankind on Earth. Damage to the ozone layer, climate change, pollution of land, air and water, extinction of organic species and reduction of biodiversity are the main causes of global environmental crisis (Forsyth, 2004). As consequences of ecological crisis are increasingly frequent natural disasters, as evidenced by various

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analyzes (Guan, Zheng, Zhang, & Qin, 2015; Guha-Sapir, Hargitt, & Hoyois, 2004; Zhang, Gu, Singh, & Xiao, 2014; Cvetković, 2013, 2014a, 2014b; Cvetković & Mijalković, 2015; Cvetković & Dragicević, 2014), there is a need for better preparedness of citizens to respond to natural disasters. Citizens' knowledge about natural disasters and preventive measures can be the key to the prevention, while knowledge, preparedness and measures that citizens take after a natural disaster can be crucial in mitigating disasters that could not be prevented (Dufty, 2009; Adem, 2011; Cvetković & Ivanov, 2014; Cvetković, Ivanov, & Sadiyeh, 2015; Cvetković & Stojković, 2015; Ivanov & Cvetković, 2014). Guided by the results of these surveys and the fact that education and information are important in reducing the risk of natural disasters, we wanted to examine the relationship between demographic and environmental factors with the knowledge of participants about natural disasters. In the literature, there is a wide range of theoretical definitions of preparedness to respond to natural disasters (Muttarak & Pothisiri, 2013; Patton, 2003), which can conditionally be reduced to knowledge and specific activities being undertaken proactively and reactively in order to prevent or mitigate the negative consequences of natural disaster. Accordingly, in this paper, we consider knowledge as one of the most important elements of preparedness of students for responding to a natural disaster (Horney, Snider, Malone, Gammons, & Ramsey, 2008; Kapucu, 2008; Kirschenbaum, 2006; Mishra & Suar, 2007; Ozmen, 2006; Ronan, Johnston, Daly, & Fairley, 2001)

There are several reasons why we decided to test high school students. Testing the student population is very important in terms of determining the action strategy and improving preparedness for responding to natural disasters. Namely, students acquire their knowledge through both formal and informal education systems (Ivanov & Cvetković, 2014). They use almost all modern media - computers, video games, the Internet, etc., but also traditional ones such as TV, radio, print media, etc. In this context, we consider that demographic and environmental factors are among the most important ones that may affect students in terms of their knowledge on natural disasters. In our country, there are few studies on the connection between demographic and environmental factors with the knowledge of students about natural disasters (Cvetković et al., 2015; Cvetković & Stojković, 2015; Jakovljević, Cvetković & Gačić, 2015). Similar surveys conducted in our country are related to ecological knowledge of students (Stanišić & Maksić, 2014). As these studies show, family, school and media are key determinants of ecological education of young people. However, the family dramatically loses influence, while the school is still competing with the media to be the most important factor of environmental education. By analyzing the textbooks used in primary and secondary education programs in

the Republic of Serbia, Milošević, Kovačević-Majkić, and Panić (2012) have come to conclusion that topics on natural disasters are not represented adequately. In fact, in this study they pointed out that more attention is paid to natural processes, and less to consequences and students are not given almost any instructions to be followed before, during and after natural disasters (Kovačević-Majkić, Milošević, Panić, Miljanović, & Čalić, 2014).

Children who are familiar with the phenomenon of disasters and how to react in such situations are able to quickly and appropriately respond in order to protect themselves and to alert the others of potential hazards. One of the classic examples of the power of knowledge and education is the story of 10-year-old girl from Britain, Tilly Smith, who warned tourists to flee before the tsunami in the Indian Ocean came to shore. In doing so, she saved more than 100 tourists. She recognized the signs of a tsunami that was approaching, as she learned about this phenomenon at school from geography lessons, just a week before she visited Thailand (Shaw, Shiwaku, & Takeuchi, 2011). The UK is not the country in which such phenomena occur, and she had no previous experience, but knowledge acquired in the classroom contributed to save the lives of a large number of people.

### **Literature review**

Studying the links between education and reduction of risk from natural disasters has been dealt by a number of researchers (Arya, 1993; Haulle, 2012; V. A. Johnson, Ronan, D. M. Johnston, & Peace, 2014; Shaw, K. S. H Kobayashi & M. Kobayashi, 2004; Lidstone, 1996; Ronan et al., 2001; Panić, Kovačević-Majkić, Miljanović, & Miletić, 2013). Johnson et al. (2014) indicate that there are different methodological frameworks for the study of knowledge about natural disasters, and quantitative research is the most common. Relationship between education and knowledge, perceptions or preparedness of pupils/students for responding to natural disasters has been dealt by many researchers (Adem, 2011; Becker, Paton, Johnston, & Ronan, 2012; Dufty, 2009; Faupel & Styles, 1993; Finnis, Johnston, Becker, Ronan, & Paton, 2007; Haulle, 2012; Johnson, 2011; Kagawa & Selby, 2012; Mishra & Suar, 2007, 2012; Ronan & Johnston, 2003; Shiwaku & Fernandez, 2011; Takeuchi, Mulyasari, & Shaw, 2011; Vinh Hung, Shaw, & Kobayshi, 2007; Vitek & Berta, 1982). The research results show that school contributes to formation of basic knowledge related to natural disasters, however, as authors Shiwaku and Shaw (2008) suggest, school is not very effective in disseminating this kind of knowledge. On the other hand, the key factors in gaining knowledge about natural disasters are family and community members. These authors explain this

by the fact that in areas where natural disasters are often, families and community members share knowledge to young people. Education system is mostly the same in all parts of a country and the knowledge that students acquire in school does not depend on geo-morphological characteristics of terrain or how much an area is at risk from natural disasters. However, Adem (2011) states that young people who gain knowledge about natural disasters at school have a higher level of knowledge and that knowledge is based on scientific facts, while the knowledge that young people acquire within the family and the media is without structure, unsystematic and can lead to misconceptions and inaccurate information. For instance, Finnis, Johnston, Ronan, & White (2010) in their research confirmed a positive correlation between higher levels of education and the level of preparedness at the household level. Faupel, Kelley, & Petee (1992) by the results of their research established a strong link between participation in educational programs on disasters with the level of preparedness to respond. Becker et al. (2012) indicate that traditional educational approach in which students passively receive information about disasters has an effect of a very low level of awareness and motivation for preparedness. Shaw et al. (2004) as the conclusion of their work, claim that previous experience of students in earthquake does not affect the awareness of disasters to a considerable extent, but only they are informed about this phenomenon. At the same time, they point out that formal (school) education is crucial for advancement of knowledge and perceptions on disasters.

### **Research methodology**

In order to determine the level and the factors that influence the knowledge on natural disasters we examined the relationship between demographic and environmental factors of students with their knowledge. On this occasion, we studied the relationship of knowledge with the following factors: gender, age, success accomplished in school, education of mother and father, ways of obtaining information. The results of these tests will allow selection of the best ways of learning. The following will show concrete results in the order given in this paragraph.

#### *Instrument*

The study included specially designed questionnaire containing questions related to the independent variables (education of mother and father, awareness within family, information within school, grade point average in school, information from the media), and questions relating to perception, knowledge and familiarity with security procedures for responding to natural disasters. Before we began the

survey, we conducted a pilot study in which we determined whether the instructions, questions and values on scales are clear. In addition, pilot research was conducted on a sample of 50 students from one of the schools (25 males and 25 females). Respondents from pilot study are not included in the final survey results. Based on the results of processing of the pilot survey, we made a certain adjustments of the instrument in terms of formulation and order of some questions.

### *Sample*

Of the total of 65,561 high school students in Belgrade, a sample of 3,063 students was taken for the purpose of the study, which is 4.67% of the high school students. We applied the multistage sample. Namely, in the first stage we observed all Belgrade schools and selected randomly 13 of them (Table 1). In the second stage, observation units were classrooms in selected schools. The classrooms were randomly selected and we questioned students who attended classes that day. The response rate was around 98%. In order to gain insight into the representativeness of the sample it is necessary to analyze the structure of the respondents according to key characteristics in field of natural disasters. Below is an outline of the structure of the sample by gender, class, family members of the respondents, education of the family members and their employment. Male respondents in the sample were represented with 49.6%, while females made up 50.4%. When it comes to the structure of the students by grade, we can see that 30.9% of the participants attend the first grade of secondary school, 27.4% attend the second grade, 22% attend the third grade and 19.7% the fourth year of secondary school. If we look at the population structure by grade (first grade 27.1%, second grade 25.87%, third grade 25.29% and 21.33% the fourth grade), we find that it does not differ significantly. The Table 1 shows the schools where research was conducted, and the number of students who participated in the study. The survey was conducted in September and October 2013.

Table 1. Sample structure

School name	Sample		Total
	Gender of students (%)		
	male	female	
Mathematical high school	54.5	45.5	323
Business law school Belgrade	29.8	70.2	242
Electrotechnical school “Nikola Tesla“	84.0	16.0	243
Agricultural school with boarding school “PK Beograd“	35.3	64.7	150
Geodetic Technical School	67.7	32.3	161
Medical school “Nadežda Petrović“	19.4	80.6	350
Geological and Hydrometeorological school “Milutin Milanković“	49.4	50.6	83
School of Economics “Nada Dimić“	38.0	62.0	150
Tourism High School	48.9	51.1	180
Sixth Belgrade High School	39.6	60.4	457
First Belgrade High School	36.1	63.9	379
Graphic Art School	40.2	59.8	92
Electrotechnical School “Stari Grad“	94.4	5.65	396
Total: 13 schools			3,063

We checked representativeness of the sample in terms of characteristics of general student population. Thus, for example, male students in the sample were represented with 49.6%, while female students accounted for 50.4%; the highest number has a parent with a high school education (42.2% have mothers and 44% have fathers), then with high education (25.9% have mothers, 24.1% have fathers), higher education (22.3% mothers, 21.6% fathers) and finally with academic titles (7.4% mothers, 9% fathers); in 61.2% of the cases, both parents are employed, in 32.6% of the cases only one parent is employed, while in 6.2% of the cases, both parents are unemployed.

#### *Data Analysis*

Analysis of data collected from the survey was based on the application of the methods of descriptive statistics, namely the determination of frequency, calculation of percentages and mean values. Desiring to establish the correlation between different characteristics of respondents and their perceptions, familiarity with safety procedures for responding to natural disasters, the authors have opted for the Chi-Square test of independence (Chi-Square -  $\chi^2$ ).

## Results and Discussion

In studies of disasters, the correlation between gender and preparedness to respond to natural disasters is a very current topic (Combs et al., 2010; Drabek, 1969; Ikeda, 1995; Mano-Negrin & Sheaffer, 2004; Mehta, 2007; Mulilis, 1999; Myers, 1994; Norris, 1992; Rodríguez, Kennedy, Quarantelli, Ressler, & Dynes, 2009; Rüstemli & Karanci, 1999). Our findings indicate that there is a significant statistical correlation between gender of respondents and ( $p = 0.000 < 0.05$ ) knowledge on natural disasters. Most female respondents (95.0%) gave the correct answer to the question of what most precisely describes natural disasters, while the highest number (6%) of incorrect answers was given by (6%) male respondents. On the other hand, there is no correlation between gender and perception ( $p = 0.093 > 0.05$ ), and familiarity with safety procedures for responding to natural disasters ( $p = 0.068 > 0.05$ ). Compared with previous findings, there are matching of results, especially in terms of better preparedness of females in terms of knowledge on natural disasters (Mano-Negrin & Sheaffer, 2004; Tomio, Sato, Matsuda, Koga, & Mizumura, 2014). A significant question is the relationship between age and knowledge and preparedness for responding to natural disasters. Numerous studies have confirmed that older citizens are more prepared to respond (Huerta & Horton, 1978; Melick & Logue, 1985; Murphy, 1994; Murrell & Norris, 1984), they have more knowledge but also they experience more serious consequences due to physical weakness (Durkin, Aaron, & Coulson, 1984; R. Johnson, M. Johnston, & Peters, 1989). Our research showed no correlation between age of respondents and perception ( $p = 0.19 > 0.05$ ), knowledge ( $p = 0.14 > 0.05$ ) and familiarity with safety procedures for responding to natural disasters ( $p = 0.14 > 0.05$ ) (Table 2).

Based on research that shows that the level of education affects the reducing consequences of natural disasters (Adam, 2011; Hurnen & McClure), we wanted to examine whether there is a connection between education level of parents with knowledge of students about natural disasters. Based on results, there is a significant statistical correlation between respondent's father's education and respondent's perception ( $p = 0.014 < 0.05$ ), knowledge ( $p = 0.002 < 0.05$ ), and familiarity with safety procedures for responding to natural disasters ( $p = 0.020 < 0.05$ ) (Table 2). In fact, most respondents (96.7%), whose fathers have higher education, answered that they know what a natural disaster is, while most of those (77.3%) whose fathers have completed primary school, did not know what natural disaster was. Most respondents (91.7%) whose fathers have high education gave the correct answer to the question of what most precisely describes natural disasters, while the highest number of respondents (15.7%) gave the incorrect answers whose fathers have academic degrees. Most

respondents (44.3%) whose fathers have higher education marked the correct procedure of action, unlike the respondents (70%) whose fathers have primary school education, which marked the highest number of incorrect answers to this question. Muttarak and Pothisiri (2013) confirm that the level of formal education of individuals is connected with the preparedness to respond to natural disasters, which is operationalized through knowledge, plans, stocks, etc. Also, Edwards (1993) and Finnis et al. (2010) confirm that the level of education is in relation to the preparedness of the natural disasters. Accordingly, it was expected that students whose fathers have a higher and high education show a higher level of knowledge, bearing in mind that they possess the knowledge that can be transferred to their children. Similar findings are when it comes to education of mothers. Namely, there is a significant statistical correlation between respondent's mother's education and respondent's perception ( $p = 0.027 < 0.05$ ), knowledge ( $p = 0.050 < 0.05$ ), and familiarity with safety procedures for responding to natural disasters ( $p = 0.020 < 0.05$ ). In fact, most respondents (96.6%) whose mothers have high education, answered they know what a natural disaster was, while a majority (77.3%) of respondents whose mothers have completed primary school did not know what natural disaster was. Most respondents (94.1%) whose mothers have primary education gave the correct answer to the question of what most precisely describes natural disasters, while this question was answered incorrectly by the highest number (16.8%) of respondents whose mothers have academic degrees. Most respondents (47.1%) whose mothers have higher education marked the correct procedure in emergency situations, unlike the respondents (68.5%) whose mothers have a primary school, they marked incorrect procedures (Table 2). The research results confirm previous finding regarding comparison with previous research.

Shaw et al. (2004) found that education in family and local communities in Japan has a greater impact than education in schools. On the other hand, Adem (2011) states that students who have some form of education about natural disasters in schools have a higher level of knowledge that is based on scientific facts, and knowledge acquired within family and through media is without structure, unsystematic and can lead to misconceptions and inaccurate information. The research results indicate that there is a significant statistical correlation between education in family about natural disasters and perception on knowledge about natural disasters ( $p = 0.011 < 0.05$ ). Most respondents (86.4%), who were told by family members about natural disasters, answered they know what a natural disaster was, while a majority (15.5%) of respondents who were not told, did not know. On the other hand, there is no correlation between education within family and knowledge ( $p = 0.306 > 0.05$ ), and familiarity with safety procedures for responding to natural disasters ( $p = 0.152$

> 0.05) (Table 2). Shiwaku, Shaw, Chandra Kandel, Narayan Shrestha, & Mani Dixit (2007) by results of research conducted in Nepal confirmed a link between education in family with knowledge on natural disasters. The studies that have been mentioned were carried out in countries where there is a developed system of education on disasters within family, school and local community. Results of our study confirmed the link of education within family with perception, while it was disregarded when it comes to knowledge and familiarity with safety procedures for responding to natural disasters. The reason for deviation of results of our study lies in the fact that in Serbia there is no system of education within family, school and community.

In addition to the family context, we wanted to examine how schools influence the perceptions, knowledge, and familiarity with safety procedures for responding to natural disasters. The research results indicate that there is a significant statistical link between education at school and perception they have about natural disasters ( $p = 0.000 > 0.05$ ). Most respondents (77.6%), who had education on natural disasters at school (certain classes on natural disasters), responded that they know what a natural disaster was, while a majority (27.9%) of respondents who did not have it, responded that they do not know what it is. Shiwaku and Shaw (2008) indicate similar results noting that students in Maiko who had education on natural disasters at school have a high level of perception. These results are confirmed by Ronan et al. (2001). Shiwaku et al. (2007) indicate that the lessons in schools about natural disasters can raise awareness of such risks, but these lessons cannot afford them to properly realize the importance of preventive measures as evidenced by the further results of our research. On the other hand, there is no correlation between school education about natural disasters and knowledge ( $p = 0.163 > 0.05$ ), as well as familiarity with safety procedures for responding to natural disasters ( $p = 0.488 > 0.05$ ). Faupel et al. (1992), confirm that there is no correlation between participation in educational programs and preparedness to respond to a natural disaster. Furthermore, we examined the association between success achieved in school and knowledge on natural disasters. The results indicate that there is a significant statistical link between success in school and knowledge ( $p = 0.000 < 0.05$ ), and familiarity with safety procedures for responding to natural disasters ( $p = 0.014 < 0.05$ ). Most respondents (95.8%), with great success, said that they know what a natural disaster was, while most (8.1%) respondents, with good success did not know what natural disaster was. Most respondents (92.6%), with great success gave the correct answer to the question of what most precisely describes natural disasters, while most (14.4%) with good success, gave an incorrect answer. Most respondents (44.7%) with very good success marked the correct procedure of action, while most respondents (58.7%), with good success, marked inadequate

procedure of action. On the other hand, there is no correlation between success in school and perceptions of natural disasters ( $p = 0.124 > 0.05$ ) (Table 2). Becker et al. (2012) indicate that traditional educational approach on disaster represented in schools has little impact on the level of awareness of students about disasters. Also, in a survey conducted in Japan in order to determine which factors influence students' awareness on natural disasters, conclusion was that school has little impact on the level of awareness about disasters (Shaw et al., 2004). Of the total number of respondents, 98% respondents agreed with introduction of the subject within which they would be taught on natural disasters and other security aspects. In contrast, 2% answered negatively. Based on results, there is a correlation between interest in introduction of the subject and familiarity with safety procedures for response ( $p = 0.025 < 0.05$ ). In fact, most respondents (81.7%) who agreed with introduction of the subject indicated the appropriate procedure of action, while most respondents (26.3%) who did not agree with introduction of the subject, marked inadequate procedure of action. In contrast, there is no correlation between interest in introduction of the subject, and perception ( $p = 0.083 > 0.05$ ), and knowledge ( $p = 0.542 > 0.05$ ) (Table 2). The above studies confirmed clearly the link between education at school and knowledge on natural disasters. Consequently, our results coincide with the results of mentioned research. In addition, results suggest the importance of introduction of certain lessons about disaster, which would generally lead to the improvement of security culture of young people.

Table 2 Results of Chi-square test of independence ( $\chi^2$ )

		Independent variables													
		Demographic factors					Environmental factors								
		Gender	Age	Success achieved	Father's education	Mother's education	Education within family	Education at school	Subject	TV	Interent	Video games	Radio		
Dependent variables	Perception	x2	12.5	33.4	18.13	47.32	50.02	8.23	18.24	21.36	14.42	0.40	21.36	14.42	
		df	2	5	4	7	7	4	4	4	4	2	4	4	
		p	0.09	0.19	0.12	0.01*	0.02*	0.08	0.02*	0.01*	0.00*	0.98	0.01*	0.00*	
		Knowledge	phi	0.05	0.05	0.04	0.095	0.08	0.03	0.10	0.11	0.09	0.00	0.11	0.09
	x2		17.4	9.7	34.7	39.08	47.60	3.09	11.52	3.04	1.05	1.41	3.04	1.05	
	df		2	5	4	7	8	4	2	2	4	4	2	4	
		Familiarity with safety procedures	p	0.01*	0.1	0.00*	0.00*	0.05*	0.54	0.31	0.21	0.24	0.32	0.21	0.24
	phi		0.06	0.04	0.06	0.081	0.08	0.02	0.06	0.03	0.03	0.01	0.03	0.03	
	x2		19.4	14.4	29.9	28.94	31.31	11.18	1.13	2.87	19.0	1.61	2.87	19.0	
		Familiarity with safety procedures	df	2	5	4	7	8	4	2	2	2	2	2	
	p		0.06	0.10	0.01*	0.02*	0.04*	0.02*	0.54	0.32*	0.17	0.44	0.32	0.17	
	phi		0.07	0.04	0.06	0.068	0.06	0.04	0.19	0.03	0.07	0.02	0.03	0.07	

\* Statistically significant correlation -  $p \leq 0.05$

Kurita, Nakamura, Kodama and Colombage (2006) in the study found that audio-visual methods of dissemination of knowledge about tsunami are the most efficient methods. Also, they particularly emphasized that students gained a higher percentage of knowledge with help of media. These findings are confirmed by our conducted survey. Specifically, based on the results we observe that students are usually informed on natural disasters by television (87.1%) and the Internet (58.9%) and less by lectures (27.1%), video games (14%) or radio (12.8%). Results of the analysis show that at the level of significance of 5% it can be concluded that those who acquired specific knowledge about natural disasters by watching television ( $p = 0.02 < 0.05$ ) in greater extent feel that they know what a natural disaster is. Exactly the same conclusions apply to the use of the Internet ( $p = 0.01 < 0.05$ ). Playing computer and video games does not affect the actual knowledge ( $p = 0.24 > 0.05$ ) of the respondents but affects the perception on knowledge ( $p = 0.00 < 0.05$ ). Radio is a medium which is used by high school students to a lesser extent in order to gain information about natural disasters. Therefore, the results indicate that it is

not connected with the knowledge of respondents on natural disasters ( $p = 0.32 < 0.05$ ).

### **Conclusion**

In examining the connection between certain demographic and environmental factors and knowledge of students on natural disasters, we obtained the following results: there is a correlation between gender of students and their knowledge on natural disasters. Results showed that female students are better informed about natural disasters. On the other hand, we found that gender has no influence on the perception and familiarity with safety procedures for responding to natural disasters. Therefore, special attention to raising awareness should be directed towards male students; results showed no relationship between age of students and their knowledge, perceptions and familiarity with safety procedures for responding to natural disasters. Education about natural disasters should include students of all ages, without special attention to particular categories of age. Results indicate that education of parents is related to knowledge, perception and familiarity with safety procedures for responding to natural disasters. Especially noteworthy is equal correlation of education of father and mother with the above dependent variables. Significantly it is to conduct additional research to more clearly examine the association of education level of parents and students' knowledge on natural disasters. Bearing in mind the importance of education about natural disasters at school and within family, we wanted to examine what kind of education is more effective and produces better results. Regardless of our desire and the expected differences, we get similar results, indicating that education in school and family only affects the perception on natural disasters. The question remains, whether the results are consequences of the lack of participation of schools and families in development of security culture of young people. Furthermore, the results indicate that achieved success in school is associated with knowledge and familiarity with safety procedures for responding to natural disasters. The excellent students are more informed and know better the procedures for reacting in such situations. Whether it is a result of their attitude towards personal development and desire to know better the world around them, or it is something completely different, it remains to researchers to investigate. Starting from the fact that education in school and family about natural disasters only affects the perception, we wanted to examine whether the media influence the knowledge on natural disasters. The results showed that television and the Internet influence students' knowledge on natural disasters. Therefore, this argument should be used in a better conception of the role of television and the Internet to disseminate knowledge about natural disasters.

Since 1975 until 1993, in our educational system there was the subject Defense and Protection within which students, among other things, acquired this kind of knowledge. Today, there is again an initiative of introducing the subject with similar topics. However, it is necessary to do a detailed analysis of the curricula for primary and secondary school and determine to what extent these educational activities are incorporated into the curriculum. On that basis, it is necessary to conclude whether it is only necessary to revise existing curricula in order to amend the contents of natural disasters or it is needed to introduce a new subject. Surely, it obliges us to continue to conduct research on this topic and find strategies of affecting the students in order to raise the level of their preparedness to respond to natural disasters. If we talk about the functionality of knowledge and knowledge that will be of benefit to students, then the curricula must include contents related to emergency response, as well as knowledge related to familiarity with first aid, health care and safety in the household. These are the topics that will be the focus of our future research.

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