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THE DEVELOPMENT OF INFORMATION SOCIETY IN THE LIGHT OF NEW DANGERS IN THE AREA OF INTERNAL SECURITY AS VIEWED BY THE STUDENTS

ABSTRACT

The development of information society contributes to many transformations; they virtually encompass all the aspects of the contemporary world. However, not all the realms of transformations are subject to scrutiny to the very same degree. This paper is an attempt to acquaint its readers with the issues oftentimes evaded or even not picked up by researchers. The author in this paper presents the results of the research conducted among the students of the Nicolaus Copernicus University in Toruń in the realm of judging the risk resulting from the development of information society within the context of internal security as well as within the evaluation of the level of these dangers. The results of the author's investigation indicate that there are many factors which statistically significantly determine the student's beliefs in the scrutinized realm. Such determinants proved to be – among others- gender, the students' field of study and the frequency of using the Internet etc.

Key words: students, information society, internal security

1. INTRODUCTION

The phenomenon of the information society development is the subject of considered judgment, analysis and research of many disciplines of science. There are many such currents and researching entities conducting such investigations. Among the issues researched scientifically there are: the influence of social media on the brain functioning (Kanai, Loh, 2013), the influence of social media on interpersonal relations (Turkle, 2012), socializing students to allow them to co-exist in the information society (Stachowiak, 2012),

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cyber-bullying (Bednarek, 2011, Pyżalski, 2012), didactics 2.0 (Sajduk, 2014). There is also much research conducted in the realm of security in a broad sense. The representatives of many disciplines conduct the said research and the issues thereof encompass – for example – information security (Liederman, 2009, 2013), cyber-terrorism (Sienkiewicz, 2009), computer crime (Adamski, 2009) etc. However, it is only occasionally or does not take place at all to study the opinions in the realm of dangers an individual faces in different areas of human action. That is a certain gap that needs to be filled.

2. THE SPECIFICS OF RESEARCH

In 2014, among the students of Nicolaus Copernicus University in Toruń, the survey was conducted relating to their perception of the dangers resulting from the information society development. The questionnaires were collected within the student project realized in the academic year 2013/2014 supervised by the author of this paper. The overall number of questionnaires amounted to 2055 and after the preliminary verification, 1903 questionnaires were eligible for further study. The primary goal was to learn the Nicolaus Copernicus University students' opinions related to the dangers the individual might face in the information society and to the determination of the gravity of these dangers. The questions posed in the questionnaires related to five chosen realms of human life: professional work, health care, education, personal life and internal security. The research aim delineated in this manner led to the formulation of the major research issues, which in the area of internal security assumed the following form:

- What dangers resulting from the information society development are regarded as the most alarming by students?
- What is level of danger in the realm of internal security on the 5-degree scale according to the students?
- What factors influence the students' opinions?

The above problems were supplemented with the detailed hypotheses.

- According to the students, the biggest danger in the realm of internal security is the augmented potential for criminals due to the technological development.
- The students evaluate the level of danger on the scale ranging from 0 to 5 as being at least average, that is it has the value greater than 3.
- The factors influencing the students' opinions are the students' field of study and the evaluation of their own abilities.

The above problems and hypotheses were assigned the dependent and independent variables and appropriate indicators. The questionnaire consisted of 10 questions and brief personal information. The questions were yes/no questions.

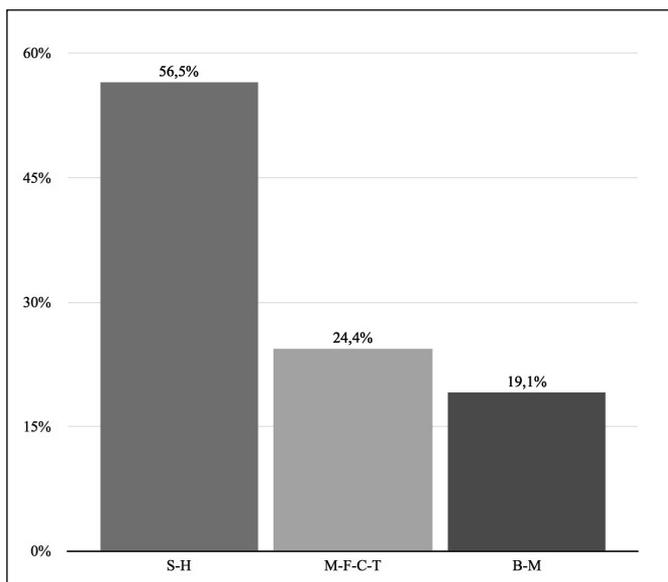
3. THE RESULTS OF THE RESEARCH

3.1 THE DESCRIPTION OF THE RESPONDENTS

It was 1903 persons that correctly filled the questionnaires. Over a half of that number of respondents were women, strictly speaking, the rate amounted to 52,5%. Three student

groups from the following fields of study were distinguished: social science/humanities (S-H), mathematics-physics-chemistry-technical science (M-F-C-T) and biological-medical and Earth-related science (B-M). Chart 1 demonstrates the structure of the respondents in terms of the field of study. The subjects' age ranged from 18 to 29, the data related to their age was represented in the form of disjunctive table. For the data being thus conceived of, the average age amounted to 21,6 years, and the dominant was 20 years, while the median was 21 years. The set of respondents proved to be statistically significantly undifferentiated in terms of age, and the co-efficient of variation amounted to 8,35%.

Chart 1. The structure of respondents in terms of their fields of study



Source: my own work.

The students proved to be active Internet users; about 70% of respondents use the Internet daily and about ½ use it regularly. The factor having an impact on the frequency of using the Internet proved to be the students' field of study. That correlation was statistically significant. That was proved by the non-parametric test. The most active group of students turned out to be the social science/humanities students. Table 1 contains the relevant details.

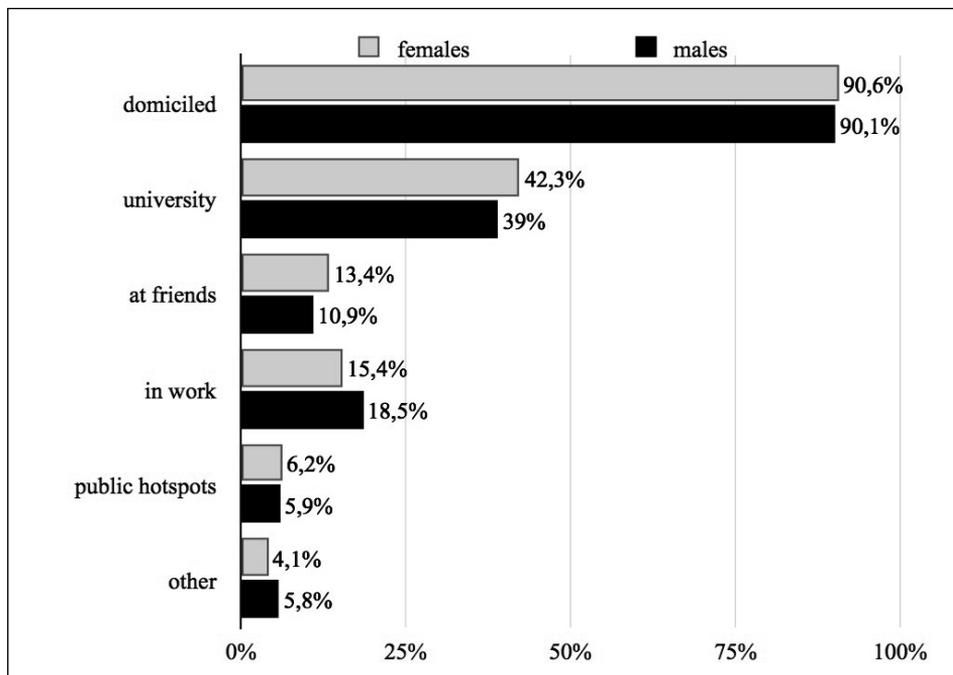
Tabela 1. The frequency of using the Internet according to the students' responses

The field of study	Daily	Regularly	Occasional use or none at all
B-M	57,5%	34,8%	7,7%
M-F-C-T	70,2%	25,2%	4,6%
S-M	75,0%	22,8%	2,2%

Source: my own work

The students made responses related to the devices providing Internet access. They not only indicated the type of device but also the share of its usage in their overall Internet use. Laptop proved to be a definite favourite. As much as 83,5% of respondents indicated the laptop as their primary device providing the Internet access. The second best was Smartphone- as much as 51%. 29,9% indicated the personal desktop computer. The least favourite device proved to be a tablet (22%). Furthermore, the respondents made declarations as for the degree to which they use each of the devices. Those number when added up amounted to 100%. Then, for this acquired data, the indicator alpha was calculated. That indicator referred to the average degree of the use of a given device. That indicator was calculated in the following manner: the sum of the declared indications were divided by the number of people indicating a given device. It was also the laptop which occupied the first place in that rating- with the average use indicated amounting to 74; second best was desktop computer with the result 52.6 and the third position was occupied by the tablet – with the result 32. The last position was occupied by the Smartphone with the result 27.7.

Chart 2. The structure of respondents in terms of the place of their using Internet



Source: my own work.

The subject of the said research was also the mobility of respondents. This issue might be considered from different angles- one of them being the type of the device used. Certainly, in that case the synonym of mobility is laptop, tablet, netbook or for that matter the Smartphone. The data related to the devices seems to confirm the students' mobility; however, when one also considers the place in which the Internet is used, the students' mobility is

less clear. The absolute majority of the students indicate their respective homes as the primary spot for using the Internet; then comes the university and then their workplaces and acquaintances' places of living. The details are presented in the chart 2, on which the factor of gender was also taken heed of. It seems that we should approach the workplace as one of the locations with caution because not all the students work and if they do, they often work at the positions not allowing for Internet use. On the other hand, the worrying data within the context of the information society development is the data related to the use of hotspots in public places. The author has been monitoring that indicator among students of Nicolaus Copernicus University for years and it does not exceed 8%¹. Undoubtedly, what has a bearing on these results is the fact that the overall number of available self-government hotspots in Toruń as well as in the voivodeship of Kuyavia and Pomerania is inadequate. In conclusion, the respondents constitute an active group when it comes to Internet use; still, in terms of mobility, Nicolaus Copernicus University students are somehow limited by the state of public hotspot infrastructure.

3. STUDENTS' OPINION RELATED TO THE DANGERS IN THE REALM OF INTERNAL SECURITY

3.1 THE ESTIMATION OF THE LEVEL OF DANGERS AS PERCEIVED BY THE STUDENTS

The respondents evaluated the level of dangers stemming from the information society development – among others – in the area of internal security. They did so within two contexts; the first of them related to self-evaluation done by a given subject. The second statement concerned the level of dangers for others. The subjects of the questionnaire had the scale ranging from 0 to 5 at their disposal. In both cases, the level of dangers was estimated roughly as moderate. In the case of dangers directed at them individually, the subject estimated the level of dangers at 2,7. The further analysis demonstrated that the factors statistically significantly influencing those estimates are gender and the students' field of study. Women estimated the level of dangers at 2,8 whereas male subjects at 2,6. In the case of the division of subjects into the *types* of faculties they study at, the apparently biggest danger was perceived by the students of S-H group. They evaluated the danger at the level of 2,8. The students from B-M group estimated it at a slightly lower level. The students from M-F-C-T group perceived the danger as even lower, estimating it at the level of 2,5. The variation of opinions across these groups differed statistically significantly and the statistical non-parametric tests verified that claim. The students also evaluated the level of dangers for the remaining items related to internal security resulting from the information society development. Here, the level of danger was perceived slightly differently; the overall estimation amounted to 3,1. Also in this case, gender proved to be a determinant, which statistically significantly influenced that issue. Women estimated the level of dangers at 3,2, whereas men at 3,0. However, the distinction into fields of study did not manifest any statistical variation in this respect. The variation occurred but was not statistically significant. The biggest danger was perceived by the students from S-H

¹ The data acquired by the author indicate that in 2009, this indicator amounted to 3%, 2012 – 8%, 2013 – 5% and in 2014 – 6% (Stachowiak, 2012 and the unpublished data).

group- 3,2; M-F-C-T students estimated it at 3,1 and in the case of subjects belonging to B-M group- at 3,0. The respondents through their answers demonstrated additionally that they regard themselves as less susceptible to dangers than the rest of society.

The factor influencing that evaluation of dangers was the frequency of Internet use. The analysis of the results should skip the group of people who claimed to be non-users of Internet- they amount to 0,5% of the researched group. It is noticeable that the growth of the Internet use frequency positively correlates with the estimation of danger in the realm of internal security understood both in the sense of individual security as well as the security of the rest of the society. In the case of the subjects who use the Internet daily, the estimate amounts to 3,3, those who use it regularly- 2,7; occasionally – 2,6. The similar trend can be observed in the evaluation of the dangers for the rest of the society. Also in this case the estimation of dangers increases as long as the frequency of Internet use increases. It increases from 2,9 through 3,0 to 3,2 respectively in the groups using the Internet occasionally, regularly and daily. The analysis of the presented data indicates that the respondents active in the Internet are aware of the existing dangers.

The last determinant the attention was paid to during the analysis of the level of danger given by respondents was the evaluation of one's own abilities related to the use of communication-information technology. However, in that case no significant regularities were observed. Thus, one of the working hypotheses was not verified.

3.2 THE MOST SERIOUS DANGERS IN THE REALM OF INTERNAL SECURITY ACCORDING TO THE STUDENTS.

The described research also aimed to answering the question of which of the dangers in the realm of internal security the subjects of the questionnaire regard as the most important. The respondents were allowed to point to at most three possibilities. The greatest number of indications were attributed to (amounting to as much as 43%) the increased potential for the emergence of criminals due to new technologies and the possibility of long-distant operations. It is little wonder that the second most popular indication (40%) was the increased extension of computer crimes. The third position was occupied (37%) by the increased threat of cyberattacks. Such choices are hardly surprising; the Internet user more often encounter bank warnings related to online banking than they do encounter analyses issued by experts from CERT (Computer Emergency Response Team). Relatively few people chose the excessive dependence of action (also under critical conditions) on technical systems. What is more, the threat of false alarms were perceived as a relatively minor threat by the students. While answering the latter question, there emerged a relatively small group, amounting to 6%, which refrained from taking a stand.

Similarly to the estimation of the level of dangers, it was also in this case that the analysis related to the influence on the answers of such factors as gender, the field of study, Internet activity and the estimation of one's own abilities to use ICT. The analysis of the results indicate that there are slight differences between women and men when it comes to their respective answers. Still, the difference do not refer to the choice of dangers but to their intensiveness. The top three choices are identical but their degrees and their orderings differ.

The same applied when such determinants as the field of study or the estimation of one's own abilities were investigated.

The students' opinions were also determined by the frequency of their using the Internet. For two groups of respondents using the Internet regularly and daily, the top three indications were identical but they differ in terms of their orderings. On the other hand, in the case of the group of students occasionally using the Internet, a certain change occurred. It is exclusively with this group that the threat of false alarms appeared in top three indications.

4. CONCLUSION

The said outcome of the research indicate that the respondents are aware of the dangers the development of the information society is associated with. Still, they perceive those dangers rather from the vantage point of an individual than from the position of the whole society. It turns out that the subjects who are the most active in the Internet appreciate the level of dangers more. It seems that what has a bearing on this fact is the more frequent use of e-services and the potential warnings issued by service providers. Apparently, the determinants contributing to the perception of dangers are also age and the level of education; still, in that researched group the investigation of how much those factors contribute proved impossible. The research scheduled for the forthcoming future will allow for establishing to what degree time, and thus the technological development, influences respondents' opinions in the realm of those dangers.

REFERENCES

- Adamski, A. (2009). Podstawy jurysdykcji cyberprzestępstw w prawie porównawczym. In *Księga pamiątkowa ku czci Profesora Jana Białocerkiewicza*, t.2 (pp. 937–957). Toruń: Wyd. „Dom Organizatora” TNOiK.
- Bednarek J. (2011). Cyberagresja nowym i groźnym patologicznym procesem. In A. Rejzner (ed.), *Systemowe rozwiązywanie problemu przemocy i agresji w szkole* (pp. 167–176). Warszawa: Wydawnictwo WSP TWP.
- Kanai, R. & Loh, K. (2013). *Individual differences in social media use are reflected in brain structure*, Papers from the 2013 AAAI Spring Symposium, Palo Alto, 2013. Retrieved January 2, 2015, from <http://www.aaai.org/ocs/index.php/sss/sss13/paper/view/5729/5953>
- Liederman, K. (2009). *Analiza ryzyka i ochrona informacji w systemach komputerowych*. Warszawa: Wydawnictwo Naukowe PWN.
- Liederman, K. (2013). *Bezpieczeństwo informacyjne*. Warszawa: Wydawnictwo Naukowe PWN.
- Pyżalski, J. (2012). *Agresja elektroniczna i cyberbullying jako nowe ryzykowne zachowania młodzieży*. Kraków: Oficyna Wydawnicza Impuls.
- Saduk, B. (2014). *Nowoczesna dydaktyka akademicka. Kto kogo uczy*, Kraków: Wyd. WSE.
- Sienkiewicz, P. (2009). Terroryzm w cyberprzestrzeni. In T. Jemioła, J. Kisielnicki & K. Rapid (eds.), *Cyberterroryzm – nowe wyzwania w XXI wieku* (pp. 167–230). Warszawa: Wydawnictwo WSIZiA.

- Stachowiak, B. (2012). *Socjalizacja studentów do społeczeństwa informacyjnego na przykładzie Litwy, Niemiec, Polski, Republiki Czeskiej i Ukrainy. Studium porównawcze*. Toruń: Wydawnictwo Naukowe UMK.
- Turkle, S. (2011). *Connected but alone*, Retrieved December 12, 2014, from http://www.ted.com/talks/sherry_turkle_alone_together.html