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Self-assessment of Attitudes Towards Media and the Knowledge of Safety in Cyberspace of Future Pedagogues and Teachers in Croatia and Poland

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Abstract

The purpose of the presented research was to explore, compare and describe the level of knowledge on selected issues concerning safety in cyberspace among people preparing for the profession of a pedagogue and a teacher, and to present opinions of the examined people on their attitudes towards the broadly understood media. The research was comparative and comprised a group of 519 students of pedagogical and educational majors of the University of Split (Croatia) and the University of Silesia in Katowice (Poland).

Keywords: *digital literacy, higher education, Internet safety, media literacy, pedagogical media competencies*

Introduction

Media, information and communication technologies (ICT), Internet-enabled devices are present in many areas of life of both the family itself (Petani & Karamatić Brčić, 2014), and of the globalized society. In higher education they allow an increasing number of people to use sources of knowledge (Khalid & Pedersen, 2016). On the one hand, they are a part of culture and social processes, creating both positive and negative phenomena, and, on the other hand, they constitute tools which have the potential to enrich and improve many activities.

Knowledge and competencies in the described scope are often defined as ML (media literacy), MIL (media information literacy) or DL (digital literacy). These are highly desired attributes for all teaching process participants in higher education. In the subject literature, particularly in the Anglo-Saxon countries, it is possible to find reviews of the previous research on digital literacy in the context of different target groups in university education (Littlejohn, Beetham & McGill, 2012). There is a need to extend the presence of specialists in various domains in the process of implementation of the whole spectrum of media education and critical thinking training (Fedorov & Levitskaya, 2015).

At the same time, there is an emphasis on the need to use media-information and communication technologies in the process of teaching and learning. In 2012–2014, Fredrik Mørk Røkenes and Rune Johan Krumsvik (2016) carried out observation-based research into the didactic use of media and digital competencies in the context of teaching English as a second language (ESL). In 2012, the research was conducted on a group of 158 primary school teachers in Croatia within urban and rural areas. In the summary, the authors emphasize that the students preparing for the profession of educators and teachers should be taught multimedia didactics to know how to teach their pupils to use technological tools, e.g. tablet, computer, smartphone, social media, etc. (Topolovčan, Toplak & Matijević, 2013).

The purpose of the narrow area of research presented in this article was to explore, compare and describe the level of knowledge on the selected issues concerning safety in cyberspace among people preparing for the profession of a pedagogue and a teacher, and to present opinions of the examined people on their attitudes towards the broadly understood media. No comparisons in that field had been made so far in these two countries. Particularizing the purpose defined in such a manner, the empirical search was focused on analyses which were supposed to provide answers to the research problems, formulated in the form of the following questions:

What is the self-assessment of the attitudes towards media among people preparing for the profession of a pedagogue and a teacher in Croatia and Poland?

What is the level of knowledge about selected phenomena concerning safety in cyberspace among the respondents?

Do the country of origin, major and the level of advancement of studies differentiate the level of knowledge in the examined scope and if they do, how?

Comparative analyses were designed and conducted in two countries. To additionally present diversity or its absence in the obtained results, they were placed in a broader context of valid teaching programmes. The media were widely under-

stood as means of communication, tools and as the message itself. On the other hand, safety in cyberspace concerned technical aspects of using the Internet, but also in this case a great emphasis was put on the cultural and social phenomena occurring in this area, which were particularized further in the article.

The dependent variables in the presented study section referred to the respondents' attitudes to the media determined in the self-assessment and the level of knowledge about selected cyber safety phenomena.

Answers given in the questionnaire and the score in the knowledge test will be the indicators of these variables. The independent variables referred to the country of origin (Croatia/Poland), the study major and the level of advancement.

Methods

In the research presented below, the researcher used: a document analysis method, a test which was supposed to determine the respondents' level of knowledge about the selected issues related to the widely understood safety in cyberspace and a diagnostic survey with the use of a questionnaire.

The research group consisted of 519 people (n = 519). It included 233 respondents studying pedagogy or teacher training at the University of Split (Croatia) and 286 respondents studying pedagogy (including early childhood and pre-primary education) and special pedagogy at the University of Silesia in Katowice, Poland. Among the 519 examined students, as many as 94% are women. The respondent population consists of people who started a study major which enables them to do educational work with children and teenagers. Therefore, it may be assumed that this is the group which should possess high competencies with regard to media literacy and digital literacy, which would be an answer to the challenges of the contemporary mediatised world. Also, this group may face tasks concerning pupils' media education. At the same time, the respondents are people currently being on the border of two communities – on the one hand, they prepare for pedagogical work, while on the other hand, they themselves are still students. Owing to time frames and their age, they are often classified as the so-called generation Y, for whom technical novelties, media devices and cyberspace should not be a problem.

It is impossible to directly observe educational media competencies (Tiede, Grafe & Hobbes, 2015) and there is hardly any dedicated complex quantifiable measurement. An element of special interest in the author's research was therefore the level of knowledge about safety in cyberspace. By analyzing the future teachers' knowledge, the author refers here to the concept of didactic learning

outcome measurement. The basis is Boleslaw Niemierko's "Taksonomia ABC" ["ABC Taxonomy"]. In the author's research, the test was intended to measure the memorizing and understanding of the message (level I: categories A and B) (Niemierko, 2009). In Bloom's taxonomy, those issues can be defined in the cognitive (knowledge-based) domain as two first levels of objectives from a group of six: remembering and comprehending (e.g., Bloom et al., 1956; Adams, 2015) The research also refers to the first two levels of the data–information–knowledge–wisdom (DIKW) hierarchy (Rowley, 2007).

Safety was widely understood as it applied not only to technical protection of using the Internet, which is widely described in the literature (e.g., Spalević, 2014), but also to the social phenomena occurring there, such as: cyberstalking, child grooming, phishing, cyberbullying, cyberbaiting or trolling. After the initial stage and pilot research, several issues were selected and a knowledge test questionnaire was created.

The test was voluntary and anonymous. Each questionnaire had a code, which made it possible to match it with a survey questionnaire filled in by the same respondent without disclosing their personal data. The respondents could obtain a maximum of 20 points in the test. It was assumed that the level of knowledge measured with the test can be identified on a five-degree scale as very high (17–20), high (13–16), average (9–12), low (5–8), and very low (0–4). The possible score was divided into four points in five categories. If a respondent did not get any point, they were qualified to the last category – very low.

The respondents were also asked to fill in an anonymous survey questionnaire, which contained close-ended questions and scale questions, where the respondents selected from among 5 degrees of the intensity of a given feature. The scale used was Likert's Scale. This method involved a broader area of issues. For the purpose of these analyses, the emphasis will be put only on self-assessment of attitudes towards media, which the respondents could identify as: positive, neutral or negative.

The percentage distribution and descriptive statistics of the data were prepared after the analysis of answers. A statistical analysis with the use of the Kruskal-Wallis and Mann-Whitney U test, using the Statistica program was performed to verify whether people from different countries, studying different majors or being more or less advanced in the course of the studies differed statistically in the selected aspects. Additionally, the chi-square test of independence was used. The tests and analyses were conducted between March and May 2016.

Analysis of documents was related to the curriculum in education at both universities. Specifically, the researcher focused on media and technology related subjects.

Results

During participation in the diagnostic survey, the respondents were asked to define their attitudes towards the broadly understood media. However, it did not involve classifying themselves as critical or undiscriminating recipients. This selection, for obvious reasons, would have been evocative and – as can be supposed – it could be partly linked to wishful thinking. The respondents could specify their attitudes as: positive, negative, or neutral. The analysis was conducted with the chi-square test of independence in order to verify whether people from Croatia differ from people from Poland in terms of assessment of their attitudes towards media. Table 1 presents the results obtained in the test without considering the questionnaires, in which the respondents did not provide answers.

Table 1. Nationality/country of origin and assessment of the respondents' attitudes towards media in the opinion of the examined people (N = 519)

The attitude towards media can be identified as:	Country			
	Croatia		Poland	
	n	% of the group	n	% of the group
Positive	149	65.07	140	50.18
Neutral	70	30.57	123	44.09
Negative	10	4.37	16	5.73
Total	229	100.00	279	100.00

The analysis with the chi-square test of independence demonstrated statistically significant differences: $chi^2(2) = 11.41$; $p = 0.003$. This means that the people from Poland more often than the people from Croatia assessed their attitudes as neutral, while the people from Croatia more often than the people from Poland had a positive attitude towards media. However, the largest number of people in both groups identified their attitudes as positive. Among the people from Croatia it amounted to 65% of the group, and from Poland – 50% of the respondents. The least numerous part in both groups consisted of the respondents evaluating their attitudes towards media as negative.

When making an attempt to diagnose the level of knowledge about the so-called digital literacy, the subject matter was narrowed only to the Internet, as an example of the so-called new converging, interactive, digital, and virtual media. Each respondent could obtain a maximum of 20 points in the test. The most numerous group of the Croatian students (17.16%) consisted of those who obtained 11 points in the knowledge test. In this group, none of the examined obtained the overall sum of 19 or 20 points. Two people obtained zero points. Among the Polish students, the majority obtained 15 points (15.73% of the group); two people obtained a maximum result of 20 points, and seven people obtained 19 points. In the Polish group, as many as four people obtained zero points.

The obtained raw results were subjected to further analyses. A point-based average was determined in two subgroups and it compared them against each other. In order to verify whether the people from Croatia differed in the statistically significant manner from the people from Poland in terms of the obtained results of the knowledge test, an analysis was conducted with the use of the Mann-Whitney U test, which allows for comparison of the two groups (Table 2.)

Table 2. Nationality/country of origin and the result of the knowledge test obtained by the examined people (N = 519)

Variable	Country	Average	Standard deviation	Result of the Z test	Importance level
Knowledge test	Croatia	12.28	3.03	**5.93**	**<0.001**
	Poland	13.60	3.44		

The analysis with the use of the Mann-Whitney U test demonstrated statistically significant differences. This means that the people from Poland obtained higher knowledge test results than the people from Croatia. The average for the students from Poland amounted to 13.60 points and for the students from Croatia – 12.28 points.

At the next stage, four-point intervals on a 5-grade scale of knowledge level were determined, as a result of which each respondent was qualified into the appropriate interval. In order to verify whether the people from Croatia differed in a statistically significant manner from the people from Poland in terms of the level obtained in the knowledge test, analysis was conducted with the use of the Mann-Whitney U test. Table 3 presents the results obtained in the test.

Table 3. Nationality/country of origin and the level of the knowledge test obtained by the examined people (N = 519)

Knowledge test	Country			
	Croatia		Poland	
	n	% of the group	N	% of the group
Very high (17–20 points)	11	4.72	42	14.69
High (13–16 points)	101	43.35	159	55.59
Average (9–12 points)	106	45.49	69	24.13
Low (5–8 points)	7	3.00	7	2.45
Very low (0–4 points)	8	3.43	9	3.15
Total	233	100.00	286	100.00

Analysis with the use of the Mann-Whitney U test demonstrated statistically significant differences: $Z = 5.35$; $p < 0.001$. This means that the people from Poland obtained a higher level in the knowledge test than the people from Croatia. A very high level of knowledge – measured with the test – was obtained by 14.69% of the Polish students and 4.72% of the Croatian students. A high level of knowledge was demonstrated by 55.59% of the examined group from the University in Katowice (which is the most numerous group) and 43.35% of the group from the University of Split. The most numerous group among the future Croatian pedagogues and teachers are people whose level of knowledge should be identified as average – 45.49%; among Poles it is – 24.13%. The least numerous group in both countries included people with a very low knowledge. Here, the result were similar and oscillated around 3%.

Since the respondents were representatives of different levels of studies and years, the research aimed at verification whether this factor is significant for the possessed knowledge. In this case, the nationality of the students was not taken into account. The tested years of study were chosen randomly.

Analyses with the use of the Mann-Whitney U test and analysis with the Kruskal-Wallis test were carried out in order to verify whether people studying in different years differed from each other in terms of the obtained results of the knowledge test. Table 4 presents the results obtained in the tests.

Table 4. Year of studies and the result of the knowledge test obtained by the examined people (N = 519)

Variable	The level of studies	Year of studies	Average	Standard deviation	Test result	Importance level
Knowledge test	1st degree studies (Bachelor's degree studies)	1	13.22	3.61	Z=0.72	0.470
		3	13.58	3.09		
Knowledge test	2nd degree studies (Master's degree studies)	1	12.50	3.40	Z=1.78	0.075
		2	14.19	2.18		
Knowledge test	Integrated major	1	12.06	3.75	H=0.94	0.918
		2	12.23	1.95		
		3	11.52	3.67		
		4	12.24	2.83		
		5	12.00	2.92		

The highest average (14.19) was obtained by the students of the second year of the Master's degree studies. However, analyses with the use of the Mann-Whitney U test and analysis with the use of the Kruskal-Wallis test did not show any statistically significant differences. This means that the people studying in different years did not differ from each other in terms of the obtained results of the knowledge test in a statistically significant manner.

The separation of the respondents from different stages of studies in the analyses was intentional. The author wanted to indicate: an increase or lack of increase in memorized and understood messages, which can be referred to the level of studies. In the case of the first and second degree studies, an increase in the average score obtained in the test was found. This is not a big increase and as the analysis showed, it cannot be treated as statistically significant, but the upward trend does occur. The students, along with attaining successive stages, participated in an increasing number of classes, and so they gained competences. The highest grade point average was obtained by the second year students the during the second degree studies (the country of origin was not taken into account here). In this study, this trend was not confirmed in the case of unified (integrated) studies. No upward trend can be observed here.

Discussion

Although studies of this type have been conducted in other countries, comparative analyses have not been conducted in Poland and Croatia before. To educate future citizens to become knowledge society members, both in Poland and in Croatia, curricula changes have been made in the education of future teachers, pedagogues and educators. It is very important to analyze the knowledge of future teachers in the field of new phenomena in cyberspace. The dynamics of these issues is very high.

It is worth considering the obtained results in the context of the findings of Jennifer Tiede, Silke Grafe and Renee Hobbs (2015), who researched Pedagogical Media Competencies in relation to the education of future teachers in the US and Germany. The research was based on analysis of legal documents, scientific literature and teaching programmes in higher education institutions in both countries (Tiede et al., 2015). Both in the case of universities in Germany and in the USA, there are three dominant ways of implementing media pedagogical knowledge into the teaching programmes: elective courses, being a part of the main program of teacher training; additional certificates and separate studies for people preparing for the teaching profession and for in-service pedagogues; graduate studies concerning one or several areas under media pedagogy (Tiede et al. 2015). The author's studies were to demonstrate diversity or its absence in the knowledge level in the two countries with regard to the differences in implementation of the content related to media and new technologies in education programmes for pedagogues and teachers.

Remarkable conclusions were also drawn by the researchers in Australia. In 2012, 100 undergraduate pre-service teacher education students enrolled in a Bachelor of Education programme in an Australian university were examined. What is interesting is that the researchers noticed a lack of translation of high competencies and knowledge concerning media in everyday life into educational actions and future professional life. This gap should be eliminated as soon as possible, thus, it is impossible not to introduce new technologies into educational programmes during studies (Duncan-Howell, 2012).

In the author's research, the knowledge concerning cyberspace may be determined as average bordering on high or as high despite the fact that the education programmes lack a widely developed area related to the media in the context of the development of media competencies. In the case of the University of Split, the respondents reported that the issues related to the media education and media in education – except for typical IT classes – are non-obligatory and facultative

in nature. A slightly different result was demonstrated by the respondents from the University of Silesia in Katowice. The pedagogy students may choose from several optional subjects related to the area, but also they obligatorily attend the following courses: media pedagogy in the form of lectures and information and communication technology in the form of computer workshops. Additionally, the program for people who choose specializations related to early childhood education includes lectures and classes/workshops concerning: New technologies in education, Pedagogy of Media as well as: Computer classes methodology for grades 1–3. Comparison of the two institutions may show a relation concerning the teaching programmes and it should be noted that such explorations in a similar subject area have already been carried out (Swensson & Baelo, 2015), however, so far a complete study in this respect is not available

The postulate to include the issues related to the world of media and technology in teacher training and pedagogue training is being constantly repeated. Usually, establishment of **a separate subject or a course** is suggested. Another solution is integration and implementation of media education into existing subjects and courses the examples of which were described in the subject literature (e.g., Meehan, Ray, Walker, Wells & Schwarz, 2015).

One of the reasons why future educators should have a high knowledge of safety in cyberspace is the fact that it significantly reduces exposure to the risk of cyberbaiting and cyberbullying. Turkish research demonstrated that teachers' self-assessed knowledge concerning this issue remains at an average level (Sezer, Yilmaz & Karaoglan Yilmaz, 2015).

As demonstrated by Greek researchers surveying 179 respondents, educators and pedagogues who show safe behaviours in cyberspace in everyday life during their own adventure with the Internet have a greater knowledge and more willingly promote safety in cyberspace among their students (Anastasiades & Vitalaki, 2011). The statement may be the reason for some dose of optimism with regard to the surveyed in Poland and in Croatia, who demonstrated a high level of knowledge, because the test also referred to their behaviours in the network.

Conclusion

Media competencies and digital literacy are the elements the development and training of which is required for proper and practical functioning in a world in which the development of media and technology is closely related to social life and contemporary culture. Referring to the formulated detailed research problems:

1. The attitude of people preparing for the profession of a pedagogue and a teacher in Croatia and in Poland concerning the media was defined in self-assessment as positive. It was shown by the most respondents in both countries. In both countries, this accounted for more than half of the research population.
2. The level of knowledge about selected cyber safety phenomena measured by the ABC test relating to memorising (A) and understanding (B) messages can be defined as high and medium at the upper limit.
3. The country of origin and the study major differentiate the statistically significant results. The respondents from Poland got a slightly higher score in the test than the respondents from Croatia. The pedagogy students received higher scores in the test than the students of other courses, both in Croatia and Poland.

The upward trend in the test result concurring with the level of advancement of studies can be observed only in the two-cycle majors – older students get a better score. However, this is not a statistically significant difference. Therefore, it cannot be confirmed that the level of advancement of studies is a differentiating factor.

The author's studies are subject to some restrictions. The results are not to be generalized to the whole population of future teachers and educators in a particular country. In the future research it will be worth extending the exploration to three components of competencies, i.e., knowledge, skills, and attitudes.

References

Adams, N.E. (2015). Bloom's taxonomy of cognitive learning objectives. *Journal of the Medical Library Association : JMLA*, *103*(3), 152–153. Retrieved from: http://doi.org/10.3163/1536–5050.103.3.010 (18.10.2017)

Anastasiades, P.S., & Vitalaki, E. (2011). Promoting Internet Safety in Greek Primary Schools: the Teacher's Role. *Educational Technology & Society*, 14(2), 71–80.

Bloom, B.S., Engelhart, M.D., Furst, E.J., Hill, W.H., & Krathwohl, D.R. (1956). *Taxonomy of educational objectives, handbook I: The cognitive domain*. New York: David McKay Co Inc. Retrieved from: http://www.univpgri-palembang.ac.id/perpus-fkip/Perpustakaan/Pendidikan%20&%20Pengajaran/Taxonomy_of_Educational_Objectives__Handbook_1__Cognitive_Domain.pdf (1.10.2017)

Duncan-Howell, J. (2012). Digital mismatch: Expectations and realities of digital competency amongst pre-service education students. *Australasian Journal of Educational Technology*, 28(5), 827–840.

Fedorov, A., & Levitskaya, A. (2015). The Framework of Media Education and Media Crit-

icism in the Contemporary World: The opinion of International Experts. *Comunicar. Media Education Research Journal*, 45, 107–115.

Khalid, Md. S., & Pedersen, M. (2016). Digital Exclusion in Higher Education Contexts: A Systematic Literature Review. *Procedia – Social and Behavioral Sciences,* 228, 614–621.

Littlejohn, A., Beetham H., & McGill, L. (2012). Learning at the digital frontier: a review of digital literacies in theory and practice. *Journal of Computer Assisted Learning*, 28, 547–556.

Meehan, J., Ray, B., Wells, S., Walker, A., & Schwarz, G. (2015). Media Literacy in Teacher Education: A Good Fit across the Curriculum. *Journal of Media Literacy Education*, 7(2), 81–86.

Niemierko, B. (2009). *Diagnostyka edukacyjna. Podręcznik akademicki* [Educational Diagnostics. Academic Textbook], Wydawnictwo Naukowe PWN, Warszawa.

Petani, R., & Karamatić Brčić, M. (2014). Family Environment, Communication And Media Education. *Perspectives of Innovations, Economics & Business*, 14 (3), 132–142.

Røkenes, F.M., & Krumsvik, R.J. (2016). Prepared to teach ESL with ICT? A study of digital competence in Norwegian teacher education. *Computers & Education,* 97, 1–20.

Rowley, J. (2007). The wisdom hierarchy: representation of the DIKW hierarchy. *Journal of Information Science* 33 (2), 163–180.

Sezer, B., Yilmaz, R., & Karaoglan Yilmaz, F.G. (2015). Cyber bullying and teachers' awareness. *Internet Research*, 25(4), 674–687.

Spalević, **Ž**. (2014). Cyber Security as a Global Challenge of The Modern Era. Paper presented at Sinteza 2014 – Impact of the Internet on Business Activities in Serbia and Worldwide. Retrieved from doi:10.15308/sinteza-2014–687–692 (9.10.2016).

Swensson, M., & Baelo, R. (2015). Teacher students' perceptions of their digital competence. *Procedia – Social and Behavioral Sciences,* 180, 1527–1534.

Tiede, J., Grafe, S., & Hobbs, R. (2015). Pedagogical Media Competencies of Preservice Teachers in Germany and the United States: A Comparative Analysis of Theory and Practice. *Peabody Journal of Education*, 90(4), 533–545.

Topolovčan, T., Toplak T., & Matijević, M. (2013). Ownership and Use of New Media by Teachers in Rural and Urban Areas of Croatia. Paper presented at The 1st International Conference on Research and Education – Challenges Toward the Future (ICRAE2013), 24–25 May 2013. Retrieved from http://eric.ed.gov/?id=ED545362 (10.10.2016).