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D.5.1.

Perception of disinformation and fake news in the environment of children and adolescents in SVK

Report

Perception of disinformation and fake news in the environment of children and adolescents in SVK

Lucia Spálová

Norbert Vrabec

Faculty of Mass Media Communication, University of SS. Cyril and Methodius in Trnava

Introduction

Report summarizes the results and main findings of the research conducted in the period 2022-23 within the research topic Social impact of disinformation campaigns and fake news in the environment of SVK among adolescents (generation Z).

Report 5.1.1 identifies the level of critical thinking as a general predictor of digital resilience to disinformation and fake news among Generation Z in 2023

Report 5.1.2 identifies the effectiveness of critical thinking training on critical thinking as a general predictor of digital resilience to disinformation and fake news in Generation Z

Report 5.1.3 identifies the perceptions (mental maps) of Generation Z to the concepts of disinformation, hoax in relation to self under investigation and identifies effective media types and tools in media intervention[1]

[1] (neskrátená výskumná štúdia v spoluautorstve s P. Mikulášom je predložená aj ako samostatný publikačný výstup – hlavná autorka Lucia Spálová zodpovedá za dizajn výskumu a jeho administráciu)

Research report 5.1.1

Critical thinking and perception of misinformation and fake news among children and adolescents (Generation Z) in Slovakia

prof. Mgr. Lucia Spálová, PhD.

Prof. Mgr. Norbert Vrabec, PhD.

PhDr. Eva Ballová Mikušková, PhD.

Abstract

This study employed the Watson-Glaser Critical Thinking Appraisal (WGCTA), Form C, to assess the critical thinking abilities of a diverse group of participants across five key domains: Inference, Recognition of Assumption, Deduction, Interpretation, and Evaluation of Arguments. The participants were tasked with completing 80 assignments, each measuring distinct aspects of critical thinking. The results showcased variability in performance across different components, with the mean scores highest in Recognition of Assumption and Evaluation of Arguments (M=9.89), followed by Deduction (M=9.20) and Interpretation (M=9.08), and lowest in Inference (M=6.31). The standard deviation ranged from 2.21 to 2.51, indicating a relatively consistent spread of scores across the domains, with slightly higher variability in Evaluation of Arguments. These findings suggest a balanced profile of strengths and weaknesses in critical thinking skills among participants, with potential areas for improvement identified, particularly in Inference. The study concludes with recommendations for educators to enhance critical thinking abilities, emphasizing focused training in inference, diversifying teaching methods, applying real-world scenarios, and encouraging reflective practice and open-mindedness. The implications of these findings and recommendations aim to contribute to the development of effective pedagogical strategies for fostering critical thinking skills.

Methodology

This research report focuses on the level of critical thinking of primary and secondary school students in the Slovak Republic. As a measurement tool was used Watson-Glaser critical thinking assessment

test /T -185/ - Form C (Watson-Glaser critical thinking appraisal, WGCTA; Watson, Glaser, 2000. The research population consisted of 131 participants, and testing was conducted via the Survio platform between 06/2023 and 09/2023. Results showed no statistically significant differences between the girls' and boys' groups, with a total critical thinking score of 44.37 (SD =7.50). Considering the nature of the test and its difficulty for the lower age groups, we consider the level of critical thinking in the study group to be slightly above average.

Research questions

- VO1: What is the level of critical thinking in the Slovak population of students in the second stage of primary and secondary schools (Generation Z)?
- VO2: Is there a difference in the level of critical thinking between girls and boys?

Operational definition of variables

Critical thinking. We have constitutively characterized it as the ability to think analytically. We operationally defined the level of critical thinking: the summary score on the Watson-Glaser Critical Thinking Assessment.

Participants and design

Participants were invited by their teachers to participate in the survey. The survey was created online through the Survio platform. After informed consent, 131 participants completed the WGCTA; 28 participants were excluded because they were suspected of answering automatically (they completed the test too quickly). Data from 103 participants (58 girls, 44 boys, 1 did not provide information) were included in the analysis. 61 students attended high school, 30 attended vocational school, and 12 attended elementary school. Students were between 13 and 18 years old (M=16.48, SD =1.10).

Instrument

The Watson-Glaser Critical Thinking Appraisal, Form C, was used to measure critical thinking (Watson & Glaser, 2000). Participants had to complete 80 tasks that measured the ability to draw conclusions, recognize an assumption, infer, interpret, and evaluate arguments. In the first test (Inference),

participants had to indicate whether the conclusion was true, probably true, probably false, false, or there was insufficient data.

In the next three tasks (Recognition of assumption, Deduction, and Interpretation), participants evaluated whether the given assumption is taken for granted in the statement, or whether it necessarily follows from the given statements, or whether the proposed conclusion follows without reasonable doubt (they had to answer yes or no).

In the last task (Evaluation of arguments), participants had to decide whether the argument was strong or weak. For each task, the sum score of correct answers and the total score of critical thinking were calculated.

Results

The Watson-Glaser Critical Thinking Appraisal (WGCTA) measures various components of critical thinking such as the ability to draw inferences, recognize assumptions, deduce conclusions, interpret information, and evaluate arguments. The results provided indicate the performance of participants in these different areas of critical thinking.

1. Inference (M=6.31, SD=2.21):

- Mean (M) is 6.31, which suggests that, on average, participants scored 6.31 out of a possible score
- Standard Deviation (SD) is 2.21, indicating how much individual scores vary or deviate from the mean. A lower SD means scores are clustered close to the mean, while a higher SD means scores are more spread out.

2. Recognition and Assumption (M=9.89, SD=2.21):

- Average score is 9.89, suggesting participants are generally better at recognizing assumptions compared to drawing inferences.
- SD of 2.21, the same as Inference, indicates a similar spread or variation of scores around the mean.

3. Deduction (M=9.20, SD=2.28):

- The mean score is 9.20, which is higher than Inference but slightly lower than Recognition and Assumption.

- The SD of 2.28 indicates a slightly larger spread of scores around the mean compared to Inference and Recognition and Assumption.

4. Interpretation (M=9.08, SD=2.21):

- Participants, on average, scored 9.08, showing a similar level of ability in interpretation as in deduction.

- SD is 2.21, indicating a similar spread of scores to Inference and Recognition and Assumption.

5. Evaluation and Arguments (M=9.89, SD=2.51):

- The mean score is the highest, tied with Recognition and Assumption, suggesting that participants are, on average, best at evaluating arguments.

- The highest SD of 2.51 indicates that there is more variation in scores in this component compared to the others.

Table 1 Descriptive statistics

	M	SD	Md	Mo	min	Max
Age	16.48	1.11	17	17	13.00	18.00
I – inference	6.31	2.21	6	5	1.00	12.00
RA - recognition of assumption	9.89	2.21	10	9	5.00	15.00
D- deduction	9.20	2.28	9	8	3.00	15.00
I - interpretation	9.07	2.21	9	9	4.00	14.00
EA -evaluation of arguments	9.89	2.51	10	8	4.00	15.00
CT - critical thinking (total score)	44.37	7.50	44	40	27.00	63.00

Note: M – mean; SD – standard deviation; Md – median, Mo – mode, min – minimum, max – maximum, If – inference; RA - recognition of assumptions; D – deduction; I – interpretation; EA – evaluation of arguments; CT – sum score of critical thinking

Interpretation of results:

Overall Performance: Participants appear to have performed the best in Recognition and Assumption and Evaluation and Arguments, followed by Deduction and Interpretation. The lowest average performance was in Inference.

Variability of Scores: The variability (SD) in scores is highest in Evaluation and Arguments and lowest in Inference, Recognition and Assumption, and Interpretation. This might suggest a diverse range of abilities in evaluating arguments among participants.

The average score for critical thinking was 44.37 (SD =7.50).

For comparison, in Slovakia, university students of Education had an average score of 41.68 (Kosturková, 2014)[2], secondary school teachers 41.15 (Kosturková, 2013)[3], and adults in general 41.64 (Kollárová, Ballová Mikušková, 2021)[4].

A comparison of girls' and boys' critical thinking is shown in Table 2. There were no differences between girls and boys in critical thinking.

Table 2 Critical thinking of girls and boys

		M	SD	Md	Mo	min	max	t	df	p	D
age	girls	16.50	1.02	17	17	13	18	.231	100	.818	0.046
	boys	16.45	1.19	17	17	13	18				
I - inference	girls	6.41	2.20	6	5	1	12	.338	100	.736	0.068
	boys	6.26	2.24	6	6	2	11				
RA-recognition of assumption	girls	9.89	2.10	10	9	5	15	.055	100	.956	0.011
	boys	9.86	2.31	10	9	6	15				
D- deduction	girls	9.59	2.25	8	8	3	14	1.486	100	.140	0.297
	boys	8.91	2.30	10	10	6	15				
I - interpretation	girls	9.34	2.24	9	9	4	13	1.079	100	.283	0.216
	boys	8.86	2.20	9	9	4	14				
EA-evaluation of arguments	girls	10.32	2.76	9	8	5	13	1.709	100	.091	0.342
	boys	9.48	2.18	11	12	4	14				
CT - critical thinking (total score)	girls	45.55	7.29	44	39	27	63	1.449	100	.150	0.290
	boys	43.38	7.61	45	40	28	58				

Note: M – mean; SD – standard deviation; Md – median, Mo – mode, min – minimum, max – maximum, If – inference; RA - recognition of assumptions; D – deduction; I – interpretation; EA – evaluation of arguments; CT – sum score of critical thinking; t – t-test value, p – significance, df – degrees of freedom, d – Cohen's d

Conclusion

[2] Kosturková, M. (2014). Úroveň kritického myslenia študentov odboru vychovávateľstvo. *Lifelong Learninig - Celoživotní Vzdělávaní*, *4*(1), 45–61.

[3] Kosturková, M. (2013). Kritické myslenie pedagógov stredných škôl. *Pedagogika*, *4*(4), 283–298.

[4] Kollárová, N., Ballová Mikušková, E. (2021). Vzťah kritického myslenia a nepodložených presvedčení u dospelých, 2021. In. ed. Marcela Verešová *Konvergencie vedeckej činnosti študentov a učiteľov 2*. Nitra : UKF, 2021. ISBN 978-80-558-1732-3, 151-161.

Here are some preliminary conclusions that we can be drawn from research data:

Variability in Critical Thinking Skills

There is variability in the different critical thinking skills among the participants. The mean scores suggest that participants, on average, have stronger skills in Recognition of Assumption and Evaluation of Arguments, with mean scores of 9.89 in both. The weakest area, on average, appears to be Inference, with a mean score of 6.31.

Consistency in Score Distribution

The standard deviations for most components are relatively close, ranging from 2.21 to 2.51, indicating that the dispersion or spread of individual scores around the mean is relatively consistent across different critical thinking skills. However, the Evaluation of Arguments component has a slightly higher variability compared to the others.

Diverse Abilities in Evaluation of Arguments

The Evaluation of Arguments component has the highest standard deviation (2.51), suggesting a wider range of abilities in this area among the participants. Some participants may be very skilled at evaluating arguments, while others may find it challenging.

Areas for Development

The lower mean score in Inference suggests that this could be an area for development for the participants. Focused training or practice in drawing logical inferences from the information provided might help improve overall critical thinking abilities.

Balanced Strengths and Weaknesses

The similar mean scores in Recognition of Assumption, Deduction, Interpretation, and Evaluation of Arguments suggest that participants have balanced strengths and weaknesses across these areas of critical thinking.

These conclusions are very preliminary and should be treated with caution. Further analysis, including understanding the context, the characteristics of the participants, the maximum possible scores,

comparing against benchmarks or normative data, and potentially conducting inferential statistical tests, would provide a more robust and detailed interpretation of the results. These analyses will be subject to further investigation of the level of critical thinking of the selected research sample.

Recommendations for teachers to enhance the critical thinking skills of their students

Based on the results of the WGCTA test, it appears that participants have a relatively balanced performance across several components of critical thinking, with Inference identified as a potential area for improvement.

Here are some recommendations for teachers to enhance the critical thinking skills of their students:

1) Focusing on Inference Skills

Develop Logical Reasoning:

- Incorporate exercises and discussions that require students to draw logical conclusions from given information.
- Use scenarios, case studies, or real-world examples where students have to infer outcomes or implications.

Practice with Varied Content:

- Expose students to a variety of texts, data, and situations across different subjects and contexts to develop their inference skills.
- Encourage them to identify underlying themes, messages, or implications in various content.

2) Strengthening Evaluation of Arguments

- Debate and Discussion:
- Organize debates and group discussions where students can practice evaluating different viewpoints.
- Teach students how to identify strong vs. weak arguments and to construct well-reasoned arguments.

- Critical Review:

- Encourage students to critically review articles, essays, and other materials, focusing on evaluating the strength of the arguments presented.

3) Enhancing Recognition of Assumption

Questioning Assumptions:

- Teach students to identify and question underlying assumptions in arguments, texts, and scenarios.
- Discuss the impact of different assumptions on conclusions and arguments.

4) Diversifying Deduction and Interpretation Practice

Problem Solving:

- Incorporate a range of problem-solving activities that require deductive reasoning.
- Use puzzles, logic games, and scenario-based problems to develop deduction skills.

Text Analysis:

- Enhance interpretation skills through the analysis of texts, visual materials, and data.
- Discuss various interpretations and perspectives on given content.

5) Incorporation of the Real-World Applications

Apply Skills to Real-World Scenarios:

- Have students apply critical thinking skills to analyze real-world issues and scenarios.
- Discuss current events, ethical dilemmas, and practical problems.

6) Encouraging Reflective Practice

Reflection Journals:

- Encourage students to keep reflection journals where they note their thoughts, assumptions, inferences, and reflections on different topics.

Peer Review and Feedback:

- Incorporate peer review processes where students evaluate and provide feedback on each other's reasoning and arguments.

7) Utilizing Diverse Teaching Methods:

Socratic Questioning:

- Use Socratic questioning techniques to encourage deeper thinking and exploration of ideas.
- Prompt students to think more deeply about their responses and to consider alternative viewpoints.

Collaborative Learning:

- Promote group work and collaborative projects that require collective problem-solving and decision-making.

8) Assessing and Providing Feedback

Ongoing Assessment:

- Regularly assess students' critical thinking skills through varied assessment methods.
- Provide specific, constructive feedback highlighting areas of strength and areas for improvement.

9) Encouraging Open-Mindedness and Curiosity

Cultivate a Curious Mindset:

- Encourage students to ask questions, explore alternative viewpoints, and seek out additional information.
- Foster an inclusive learning environment where diverse opinions are valued and explored.

These recommendations aim to develop well-rounded critical thinking skills by focusing on identified areas of improvement and reinforcing areas of strength. Teachers should adapt and modify these strategies based on the specific needs, contexts, and learning styles of their students.

Research report 5.1.2

LEVEL OF CRITICAL THINKING OF UNIVERSITY STUDENTS OF MEDIA AND COMMUNICATION STUDIES IN THE REPUBLIC OF SVK (GENERATION Z)

prof. Mgr. Lucia Spálová, PhD.

Abstract

The research report focuses on the level of critical thinking of university students of media and communication studies in the Slovak Republic. The measurement tools used were the Watson-Glaser critical thinking appraisal test /T -185/ - Form C (Watson-Glaser critical thinking appraisal, WGCTA; Watson, Glaser, 2000), the Cognitive Reflection Test (CRT; Frederick, 2005) and the Scientific Reasoning Scale (SRS; Drummond & Fischhoff, 2017) . The research population consisted of 158 students of media and communication studies (UKF in Nitra, FMK UCM in Trnava, UK in Bratislava), testing took place 10/2022 - 03/2023. We investigated the impact of a certified course in critical thinking (29 students) implemented by the Academy of Critical Thinking and the Comenius Institute on the overall critical thinking scores of the studied group of Generation Z. The results of the study were presented in the following way The results showed no statistically significant differences in critical thinking scores between the different university institutions. The positive impact of critical thinking training was demonstrated in a statistically significant difference in the Cognitive Reflection Test (CRT), a test measuring preference for deliberative or analytical reasoning over intuitive heuristic (and incorrect solution) reasoning.

Methodology

Research questions

- VO1: Is there a difference in the level of critical thinking in media and communication studies students depending on the educational institution (university)?
- VO2: Does completing certified critical thinking training increase the level of critical thinking?

Operational definition of variables

Critical Thinking. We have constitutively characterized it as the ability to think analytically. We operationally defined the level of critical thinking: the summary score on the Watson-Glaser Critical Thinking Assessment.

Cognitive reflection. Cumulative score on the Cognitive Reflective Test (CRT) - measures preference for deliberative or analytical reasoning over intuitive heuristic (and incorrect solution) reasoning.

Scientific Reasoning Scale (SRS). SRS summary score - The final items contained the following validity threats: blinding, causation vs. correlation, confounding variables, construct validity, control group, ecological validity, and random assignment to conditions.

Critical Thinking Training. Certified critical thinking training (20 hours) was provided by professional societies: Academy of Critical Thinking; Comenius Institute.

Characteristics of the research sample

Gender	Frequency	Percent
Male	37	23,4
Female	121	76,6
Total	158	100

Field of study	Frequency	Percent
UKF MK Marketing Communications - group undergoing critical thinking training	29	18,4
UKF MK Marketing Communications	44	27,8
FMK UCM /KOMU Mass Media Communication	32	20,3
FMK UCM /TEDI Theory of Digital Games	33	20,9
UK /ŽU Journalism	20	12,7

Methodology of research on the level of critical thinking

The Watson-Glaser Critical Thinking Assessment Test (T-185), Form C (Watson, Glaser, 2000) was used to determine the level of critical thinking of undergraduate students.

The Slovak version contains 80 items (maximum raw score 80). It contains 5 subtests focusing on analytical observation skills. The first - Judgement requires an assessment of the validity of judgements formed on the basis of a series of factual data. The second (presumption recognition) involves identifying unstated assumptions or presuppositions from a series of statements. The third (inference) involves determining whether certain inferences do in fact follow from the information contained in given statements and premises. The fourth (interpretation) considers the facts and decides on the validity of generalizations and conclusions drawn from the data. The fifth (evaluation of arguments) establishes a distinction between arguments that are strong and substantive with respect to a given issue and arguments that are weak and irrelevant.

We used the Cognitive Reflection Test (CRT; Frederick 2005) to determine the level of cognitive reflection. The author hypothesized that cognitive ability is related to a preference for "patient" distant rewards compared to immediate gratification. The Cognitive Reflection Test (CRT) measures the preference for deliberative or analytical reasoning over intuitive heuristic (and incorrect solution) reasoning.

We used the Scientific Reasoning Scale (SRS; Drummond & Fischhoff, 2017) to determine the level of scientific reasoning. In this study, we used a 6-item adaptation of the scientific reasoning scale which was based on the results obtained from the sample of professional scientists. The final items contained the following validity threats: blinding, causation vs. correlation, confounding variables, construct validity, control group, and random assignment to conditions.

Results

Participants achieved an average total score of 47.06 points. In other research, the average is around 41.15 (Kosturkova, 2013) or 41.68 (Kosturkova, 2014), and abroad 64.25 (British sample according to Watson and Glasser's manual).

Table 1. WCTA, CTR and RSS subtest scores for a group of undergraduate students majoring in Media and Communication Studies

	N	M	SD	Minimum	Maximum
Age	158	22,83	1,82	19	36
IF – INFERENCE	158	6,98	2,22	1	13
RA - RECOGNITION OF ASSUMPTIONS	158	10,76	2,12	4	15
D – DEDUCTION	158	9,09	2,22	4	15
I – INTERPRETATION	158	9,62	1,89	4	14
EA – EVALUATION OF ARGUMENTS	158	10,61	2,43	2	15

CT – SUM SCORE OF CRITICAL THINKING	158	47,06	6,02	33	68
COGNITIVE REFLECTION /CRT	158	2,57	1,93	0	7
SCIENTIFIC REASONING SCALE /SRS	158	4,53	1,15	0	6

In the assessment of overall critical thinking, the best scores were achieved by journalism students at the University of Economics in Bratislava, with no statistically significant differences between the universities.

Table 2: WCTA critical thinking scores for a group of undergraduate students majoring in media and communication studies - differentiation by discipline and university

CT – SUM SCORE OF CRITICAL THINKING	UKF /MK skupina absolvujúca výcvik KM	29	46,34	6,32
	UKF /MK	44	46,30	5,69
	FMK UCM /KOMU	32	44,78	5,43
	FMK UCM /TEDI	33	48,18	5,46
	UK /ŽU	20	**51,60**	5,81
	Total	158	47,06	6,02

Table 3. Correlations of WCTA, CTR and RSS for a group of undergraduate students of media and communication studies

	age	IF	RA	D	I	EA	CT	CRT
age	1							
IF – INFERENCE	-0,029	1						
RA - RECOGNITION OF ASSUMPTIONS	0,054	,231**	1					
D – DEDUCTION	0,036	-0,105	,183*	1				
I – INTERPRETATION	-0,023	0,111	,206**	0,056	1			
EA – EVALUATION OF ARGUMENTS	0,148	0,094	,344**	0,007	,200*	1		
CT – SUM SCORE OF CRITICAL THINKING	0,074	,484**	,708**	,415**	,529**	,625**	1	
COGNITIVE REFLECTION /CRT	**-,181***	**,179***	**,259****	**,164***	0,023	**,212****	**,311****	1
SCIENTIFIC REASONING SCALE /SRS	**-,231****	0,069	**,244****	**,188***	**,164***	0,153	**,294****	,164*

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Based on the statistical analysis, we can conclude that critical thinking in media and communication studies students is significantly correlated with cognitive reflection and scientific thinking. Cognitive reflection correlates with reasoning, recognizing conjectures, inference, and evaluating arguments. Scientific thinking correlates with conjecture recognition, inference, and interpretation.

Table 4. Comparative statistics of WCTA, CTR and RSS for a group of undergraduate students of media and communication studies

	kurz kritickeho myslenia	N	Mean	Std. Deviation	t-test for Equality of Means - t	df	Sig. (2-tailed)
vek	nie	129	22,60	1,58	-3,508	156	**0,001**
	áno	29	23,86	2,40			
IF – INFERENCE	nie	129	7,08	2,23	1,156	156	0,250
	áno	29	6,55	2,15			
RA - RECOGNITION OF ASSUMPTIONS	nie	129	10,72	2,09	-0,481	156	0,631
	áno	29	10,93	2,27			
D – DEDUCTION	nie	129	9,18	2,26	0,997	156	0,320
	áno	29	8,72	2,00			
I – INTERPRETATION	nie	129	9,67	1,86	0,648	156	0,518
	áno	29	9,41	2,08			
EA – EVALUATION OF ARGUMENTS	nie	129	10,58	2,58	-0,285	156	0,776
	áno	29	10,72	1,67			
CT – SUM SCORE OF CRITICAL THINKING	nie	129	47,22	5,96	0,711	156	0,478
	áno	29	46,34	6,32			
COGNITIVE REFLECTION /CRT	nie	129	2,42	1,96	-2,093	156	**0,038**
	áno	29	3,24	1,68			
SCIENTIFIC REASONING SCALE /SRS	nie	129	4,60	1,06	1,511	156	0,133
	áno	29	4,24	1,48			

Statistical significance of the improvement of critical thinking in students at the University of Economics in Nitra undergoing certified critical thinking training in the area of cognitive reflection was confirmed.

Conclusion

In 2022/23, we conducted testing of Media and Communication Studies students with the standardized Watson-Glaser Critical Thinking Assessment (CTA), which consists of a series of five test exercises, each of which requires the application of analytical reasoning skills. We identified the status of critical thinking research after completing a variety of selected critical thinking training approaches (Critical Thinking Academy; Comenius Institute).

Answer to VO1: In the assessment of overall critical thinking skills, journalism students at the University of Bratislava scored the highest; there were no statistically significant differences between universities.

Answer to VO2: We did not identify a statistically significant increase in critical thinking in the group of students who received training compared to the control group without training. There was a statistically significant difference in the Cognitive Reflection Test (CRT), a test measuring preference for deliberative or analytical reasoning over intuitive heuristic (and incorrect solution) reasoning. The result is significant, as several findings

point to the fact that students in the humanities show a consistent tendency towards intuition compared to students in mathematics, medicine, physics, and chemistry (Stanovich, Kahneman, and Khan; in our context, see Šrol, 2015).

The statistical significance of the improvement in cognitive reflection for students receiving certified critical thinking training was confirmed. The result is inconsistent with the consistent tendency of humanities students to use heuristic methods and we consider it significant.

Research report 5.1.3

PERCEPTION OF THE MEDIA IMAGE OF THE WAR IN UKRAINE IN 2022 IN GENERATION Z - EFFECTIVENESS OF CREATIVE MARKETING STRATEGIES OF DIGITAL RESILIENCE

prof. Mgr. Lucia Spálová, PhD.

Abstract

Extreme situations, such as military conflicts, generate interest in how they are perceived by the public, which has to process a broad array of media stimuli in a certain way. In this study, we discuss how the basic aspects of the current military conflict (the war in Ukraine) were perceived by young people (Generation Z) in Slovakia, with a focus on the initial part of the Russian invasion of Ukraine. We argue that the digital resistance of Slovakia's citizens is currently low, which – in conjunction with the extremely focused activity of the disinformation scene – creates a risky environment. We use the Semantic Selection Test as a psychosemantic method on a sample of Slovak university students. One of our basic findings is the associative closeness of the concept of “Self” in Generation Z and Instagram, popular internet memes and educational videos in connection with expertise. We also found that the recipients were subject to a positive media manipulation (the Ghost of Kyiv) and were able to identify standard linguistic propaganda (negative associations of terms "war in Ukraine" and "special military operation"). The results of this study can help us understand the perception of emergency situations by Generation Z.

Theoretical background

Within the EU, Slovakia is one of the most vulnerable countries to hybrid threats.[5] The situation is framed by the popularity of the Internet as an information medium. According to a Reuters survey[6], 79 % of Slovak citizens use the internet as the main information source. At the same time, we have also noted on the global scale that the positions of traditional media are being overtaken by the Internet, especially by social media. The News Use Across Social Media Platforms 2018 research report suggests that Facebook is becoming the main digital news source, since more than 43 % of all fake- news- viewing users primarily access the fake news via Facebook[7]. And the social media that are undoubtedly one of the most visible signs of our times. According to the statistics, 71.7 % of Slovaks used them in 2020, marking a growth of 0.2 % compared to the previous year[8]. The success of digital social media with the younger population has been enormous. In Slovakia, more than 90.5 % of young people aged 16– 24 use Facebook, Instagram, Snapchat and/or other social media services[9]. By European standards, the Slovak society is unusually prone to conspiracy theories [10]and misinformation.[11] At the same time, it is characterized by extremely low trust in democratic institutions and the media.[12] The population's support for liberal democracy as a system based on freedom, equality and human rights is also on a decline.[13]

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[5] MILO, D.: Globsec: *Mapovanie zraniteľnosti slovenskej republiky v oblasti hybridných hrozieb [Mapping the Vulnerability of the Slovak Republic to Hybrid Threats].* Released in October 2018. [online]. [4/5/2023]. Available at: <https://www.globsec.org/sites/default/files/2018-08/Zranitelnost-SR-v-oblasti-hybridnych-hrozieb-web.pdf>.

[6] NEWMAN, N., FLETCHER, R., SCHULZ, A., ANDI, S., NIELSEN, R. K.: *Reuters Institute Digital News Report 2020.* [online]. [11/5/2022]. Available at: <https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2020-06/DNR_2020_FINAL.pdf>.

[7] MARTIN, N. 2018: *Forbes: How Social Media Has Changed How We Consume News.* Released on 30th November 2018. [online]. [5/5/2021]. Available at: <https://www.forbes.com/sites/nicolemartin1/2018/11/30/how-social-media-has-changed-how-we-consume-news/?sh=54044e963c3c>.

[8] YAR, L. *Vyše 90 percent mladých Slovákov a Sloveniek je na sociálnych sieťach, viac ale zaujímajú dievčatá [More than 90 percent of young Slovaks are on social networks, but girls are more interested]*. Released on 11th January 2021. [online]. [10/2/2022]. Available at: <https://euractiv.sk/section/digitalizacia/news/vyse-90-percent-mladych-slovakov-a-sloveniek-je-na-socialnych-sietach-viac-ale-zaujimaju-dievcata/>.

[9] Ibidem

[10] NEWMAN, N., FLETCHER, R., SCHULZ, A., ANDI, S., NIELSEN, R. K.: *Reuters Institute Digital News Report 2020.* [online]. [11/5/2022]. Available at: <https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2020-06/DNR_2020_FINAL.pdf>.

[11] OSTROŽOVIČOVÁ, B.: IPSOS: *Informačná vojna (prieskum CZ+SK) [Information war (CZ+SK survey)].* Released on 21th Jule 2022. [online]. [3/6/2023]. Available at: <https://www.ipsos.com/sk-sk/informacna-vojna-prieskum-czsk/>.

[12]HOW ARE YOU SLOVAKIA? (2022) – Trust in institutions; available online: https://www.akosamateslovensko.sk/tema/dovera-v-institucie/ .

[13] GLOBSEC: *GLOBSEC TRENDS 2023.* [online]. [5/1/2023]. Available at: https://www.globsec.org/sites/default/files/2023-05/GLOBSEC%20Trends%202023.pdf>.

The war in Ukraine[14], also referred to as the "Russian invasion of Ukraine" or "occupation of Ukraine", broke out on February 24, 2022. This conflict is an escalation of Russia's long-term attempt to control Ukraine, which began in 2014 with the annexation of the Crimean peninsula and armed tensions in the Donetsk and Luhansk region. The scale and intensity of the conflict is so massive that it is widely described as the largest interstate armed conflict in Europe since the end of World War II.[15] The Russian side does not term the conflict a "war", but uses a legislatively imposed label "special military operation", the observance of which is strictly monitored in Russia and its violation (i.e. labeling it a "war") is sanctioned. Russian authorities and state media therefore carefully avoid using the words "war" and "invasion"[16]. The conflict has so far (August 2023) claimed tens of thousands of wounded soldiers on both sides and officially almost 10,000 civilian casualties.[17]

Since its outbreak, the war in Ukraine has become a prominent motif on the Slovak disinformation scene. Analysts point out that the streams feeding this topic have long been stimulated by disinformation tactics of the Russian Federation[18], which both created an audience willing to share its views, and which continues to nourish this audience. The main narratives of the Slovak disinformation scene in connection with the conflict in Ukraine include[19]:

- We should not send weapons to Ukraine and thus prolong the war
- Ukraine rejects peace negotiations with Russia

[14]Since the war in Ukraine is a relatively new and topical issue, its reflection in the scientific literature is still limited, which is especially true when it comes to how it is perceived by young people. So far, its professional reflection can be found primarily in research reports of third sector organizations or surveys funded by individual countries. The research report titled "Impact of War on Youth in Ukraine#" looks into how the war is perceived by young Ukrainians and how it affects them. The report indicates that the young people directly or indirectly involved in the conflict are significantly more socially engaged than ever before, and their determination to stay and live in Ukraine, or to return from emigration, is increasing. Confidence in European (EU) and transatlantic (NATO) structures has also grown significantly. UNITED NATIONS DEVELOPMENT PROGRAMME: Impact of war on youth in Ukraine. Released on 27th April 2023. [online]. [7/12/2023]. Available at: <https://ukraine.unfpa.org/sites/default/files/pub-pdf/undp-ua-impact-war-youth-eng-findings-recommendations.pdf>.

[15] ANONYMOUS: *2 Europe and Eurasia, in Armed Conflict Survey*, 2022, Vol. 8, No. 1, p. 102-129. ISSN 2374-0981.

[16] CLARK, N. 2022. *Here's how propaganda is clouding Russians' understanding of the war in Ukraine.* Released on 15th March 2022. [online]. [6/6/2023]. Available at: <https://www.npr.org/2022/03/15/1086705796/russian-propaganda-war-in-ukraine>.

[17] UNITED NATIONS: *Ukraine: civilian casualty update 14 August 2023*. Released on 14th August 2023. [online]. [8/30/2023]. Available at: <https://www.ohchr.org/en/news/2023/08/ukraine-civilian-casualty-update-14-august-2023>.

[18]Cf.: Globsec Trends research with a telling title "Central Europe under the fire of Russian propaganda: exploring public attitudes in the Czech Republic, Hungary and Slovakia", which states: "Slovakia shows the highest level of tolerance towards a pro-Russian orientation... and also the highest level of anti-americanism." GLOBSEC: *GLOBSEC Trends: Stredná Európa pod paľbou ruskej propagandy: skúmanie postojo verejnnosti v Čechách, Maďarsku a na Slovensku [GLOBSEC Trends: Central Europe under the fire of Russian propaganda: exploring public attitudes in the Czech Republic, Hungary and Slovakia].* [online]. [4/5/2021]. Available at: <https://www.globsec.org/sites/default/files/2017-09/globsec_trends_2016_sk.pdf>.

[19] MINISTERSTVO ZAHRANIČNÝCH VECÍ A EURÓPSKYCH ZÁLEŽITOSTÍ SLOVENSKEJ REPUBLIKY: Mýty a fakty o Ukrajine *[Myths and facts about Ukraine]*. [online]. [10/2/2022]. Available at: <https://www.mzv.sk/aktualne/ukrajina/myty-a-fakty-o-ukrajine>.

- The Russian military operation is a forced response to provocation by Ukraine and the West
- Citizens in the occupied territories of Ukraine voted in favor of joining Russia
- Sanctions against Russia are not working
- The Russian-speaking population in Ukraine is hit by genocide
- Ukraine produces biological weapons

The positive sentiment related to the Russian interpretation of the war conflict is a consequence of significant activities of the disinformation environment – combined with the low digital resistance of the Slovak media audience. According to a Globsec survey[20], only 40% of Slovak citizens perceive Russia as the main culprit in the war, which is the least of all countries in the monitored region[21]. Analogous to the high sentiment towards Russia, the research identified mistrust of the Western world: up to 34% of Slovaks blame the war on the West, which they believe provoked Russia, 69% perceive aid to Ukraine as a provocation of Russia, which brings Slovakia closer to war. The Eurobarometer has reported similarly alarming numbers[22]: only 31% of Slovaks fully identify with the fact that Russia is fully responsible for unleashing the conflict. At the same time, only slightly more than half (54%) of Slovaks consider Russia a security risk.[23] Negative sentiment towards Ukrainian refugees prevails (69% vs. 59%)[24] and only 39% of Slovaks show complete sympathy for Ukrainians, while the pan-European average is at the level of 54%.[25] Alongside the growing pro-Russian sentiment, the trust in security and European structures is on a decline, and it is among the lowest in Slovakia: NATO membership is only supported by 58% of the Slovak population and EU membership by 64%.

Methodology

[20] GLOBSEC: *GLOBSEC TRENDS 2023.* [online]. [5/1/2023]. Available at: https://www.globsec.org/sites/default/files/2023-05/GLOBSEC%20Trends%202023.pdf>.
[21]The research was carried out in eight East European countries: Poland, Lithuania, Latvia, Czech Republic, Romania, Hungary, Bulgaria and Slovakia.
[22] EUROBAROMETER: *EU's response to the war in Ukraine.* [online]. [6/15/2022]. Available at: <https://europa.eu/eurobarometer/surveys/detail/2772>.
[23] GLOBSEC: *GLOBSEC TRENDS 2023.* [online]. [5/1/2023]. Available at: https://www.globsec.org/sites/default/files/2023-05/GLOBSEC%20Trends%202023.pdf>.
[24] GLOBSEC: *GLOBSEC TRENDS 2023.* [online]. [5/1/2023]. Available at: https://www.globsec.org/sites/default/files/2023-05/GLOBSEC%20Trends%202023.pdf>.
[25] EUROBAROMETER: *EU's response to the war in Ukraine.* [online]. [6/15/2022]. Available at: <https://europa.eu/eurobarometer/surveys/detail/2772>.

The perception of social phenomena reflected in the media environment can be investigated with different approaches. The methodological concepts, which are also applied in the media and communication studies dealing with the investigation of the so-called social representations, are diverse and consist of different insights[26]. The holistic concept, which also identifies the implicit meanings of the researched social phenomena, also reflects the approaches used in critical social psychology – the psychosemantic methods, which allow us to explore the subjective meaning of social representations and social concepts in marketing research[27]. Based on the above, we were interested in how Generation Z perceives the war in Ukraine and its media images. Due to the nature of our research, we prefer the triangulation approach (theoretical and methodological triangulation) with a preference for the qualitative approach, and we broadly formulated the following research questions:

VO1: How does Generation Z perceive the terms "special military operation" and "Ghost of Kyiv" associated with the significantly positive and negative media framing in the immediate aftermath of the outbreak of the military conflict in Ukraine in relation to Self?

The aim of this research was to identify the understanding of concepts associated with the onset of the military conflict in Ukraine in the semantic space of Generation Z in relation to Self and authorities in the field of protecting the safety of Slovak citizens.

Research method

This aim and the answers to the research questions have been implemented through the psychosemantic method and the Semantic Selection Test (hereinafter SST), which was modified by the authors. When using SST, we focus on how the respondents view themselves and persons and things around them in their semantic space. In this area, every object has its place depending on its importance to the respondent. The SST works with two types of elements, which will be called

[26] Cf.: DU PLESSIS, E.: *Jak zákazník vnímá značku [How the customer perceives the brand]*. Praha : Computer Press, 2011. KELLER, K. L. *Strategické řízení značky [Strategic brand management].* Praha : Grada, 2007.

[27] PLICHTOVÁ, J.: *Metódy sociálnej psychológie zblízka. Kvalitatívne a kvantitatívne skúmanie sociálnych reprezentácií. [Social psychology methods up close. Qualitative and quantitative investigation of social representations].* Bratislava : MÉDIA, 2002., URBÁNEK, T.: *Psychosémantika. Psychosémantický přístup ve výskumu a psychodiagnostice [Psychosemantics. Psychosemantic approach in research and psychodiagnostics]*. Praha : Pavel Křepela, 2003. HENDL, J.: *Kvalitativní výzkum [Qualitative research].* Praha : Portál, 2005.

stimuli/terms and attributes/images. Both elements are “meaningfully charged” from the respondent's perspective. The respondent assigns attributes to the individual terms based on his/her own beliefs, emotions and associations. In the original version of the SST, the attributes are rendered through 16 semantic images (house, flower, water, sun, lips, fish, eye, boat, moon, knife, bar, grave, spider web, snake, bar, worm). In the modified version, the participants select at least 4 and up to 8 images that best characterize the individual concepts/stimulus words. When operationalizing the research problem, we selected the stimulus words based on the attitudes of a specific group of Slovak population (Generation Z) towards the actors and skateholders in the military conflict in Ukraine in 2022 and the dominant narrative in the media.

In the modified SST we have proposed to monitor the relationships (semantic maps) of the following terms:

REFERENTIAL CONCEPTS **DESCRIPTION: REFERENTIAL CONCEPTS ASSOCIATED WITH THE ATTITUDE TOWARDS RUSSIA'S MILITARY INVASION OF UKRAINE**	
I, *CITIZEN, FOLLOWER, INTERNET TROLL*	*SPECIAL RUSSIAN MILITARY OPERATION* *UKRAINE, RUSSIA, USA, PRESIDENT ZELENSKY, PRESIDENT PUTIN*
MEDIA STRATEGIES **DESCRIPTION: CONCEPTS WITH AFFINITY TO EFFECTIVE MEDIA TYPES AND MEDIA TOOLS**	
INSTAGRAM, FACEBOOK, YOUTUBE, TIKTOK, DISINFORMATION MEDIA, HOAX, ALTERNATIVE MEDIA, EDUCATIONAL VIDEOS, MEMES	*GHOST OF KYIV*
PROTECTION OF CITIZENS DURING SECURITY THREATS **DESCRIPTION: CONCEPTS MAPPING THE EFFECTIVENESS AND VALUES OF STATE AND NON-STATE ACTORS, AND CONCEPTS THREATENING THE SECURITY OF CITIZENS**	
	SLOVAK POLICE, PRESIDENT ČAPUTOVÁ, NON-PROFIT ORGANIZATION
INACTION, INDIFFERENCE, ARROGANCE, MANIPULATION, CORRUPTION	*PANDEMIC, MIGRATION, WAR IN UKRAINE*

The research set/population consisted of a total of 75 respondents born between 1993 and 2000, and we processed 64 tests in the analysis (11 tests were excluded due to insufficiently populated data). The average age of the respondents was 22.4 years. The data collection took place in March 2022 at the Faculty of Arts, Constantine the Philosopher University in Nitra, and at FMK UCM in Trnava.

Results

In the statistical processing of the data from the semantic selection test, we used non-hierarchical cluster analysis, followed by correspondence analysis.

Cluster analysis is one of the statistical methods that deals with the similarity of multidimensional objects and the classification of objects into clusters. In general, cluster analysis can be defined as a

general logical procedure in which objects are combined into groups – clusters, based on their similarities and differences. For each pair of attributes we calculated the Simple Matching Coefficient based on the respondents' answers, which is one of the measures of dissimilarity between dichotomous objects.

Table 1 Probabilities of attributes belonging to clusters in a two-cluster solution obtained through a fuzzy cluster analysis.

Attribute	C1	C2
Dagger	0.83	0.17
Eye	0.16	0.84
Snake	0.39	0.61
Bar	0.16	0.84
Grave	0.86	0.14
Spider web	0.77	0.23
Tree	0.72	0.28
Flower	0.68	0.32
Fish	0.85	0.15
House	0.66	0.34
Water	0.26	0.74
Sun	0.53	0.47
Moon	0.18	0.82
Worm	0.78	0.22
Boat	0.19	0.81

With the help of statistical analysis, we found that the attributes (images) in connection with the selected elements (concepts) are divided into two groups, i.e. they create two dimensions. The results of correspondence analysis used in the contingency table whose columns are formed by the attributes of the first cluster suggest that the first dimension explains up to 70% of the total inertia, and the attributes of the second cluster only 51% of the total inertia. We have only prepared the interpretation and visual representation for the results from the first cluster (see Figure 1).

It is possible to identify 4 association segments in the semantic map of individual monitored terms. The first segment is significantly positively associated with the attributes *flower, tree and sun* in connection with the security values (*safety, responsibility, trust*) and the concepts reflecting important state and non-state actors in ensuring the safety of citizens – the President of the Slovak Republic Zuzana Čaputová and non-profit institutions. The second segment is significant due to the associative closeness of *Self* in Generation Z and the concepts of *citizen, Ukraine and Ghost of Kyiv*

(at the time of the administration of the test, the purposeful mythologization of the aviation hero was not known). In terms of the closest association with media communication, the dominant behavioral patterns of Generation Z (see above) include the preference of *Instagram* and participatory media communication in the form of *memes* and the so-called *educational videos.* The anchoring of the concept *expertise* in this segment is a surprising result. In the neutral zone of the second segment, the concepts of *President Zelensky, USA, Slovak Police* are anchored near the term *follower*, which indicates an increased media interest in the above political actors in association with YouTube, Facebook and TikTok. The third segment can be defined as a significantly dissociated segment with a predominantly negative connotation; the boundary between the second and third segment is anchored by the concept of *alternative media*. This segment is represented by attributes such as *mouth, water, moon* and the concepts associated with threats: *migration, pandemic, war in Ukraine, special military operation, Russia* in connection with *indifference* and *inaction.* The fourth segment has the most salient negative connotation (the attribute *worm*), the associative cluster consists of the terms *hoax, internet troll, disinformation websites, President Putin, arrogance, manipulation and corruption*.

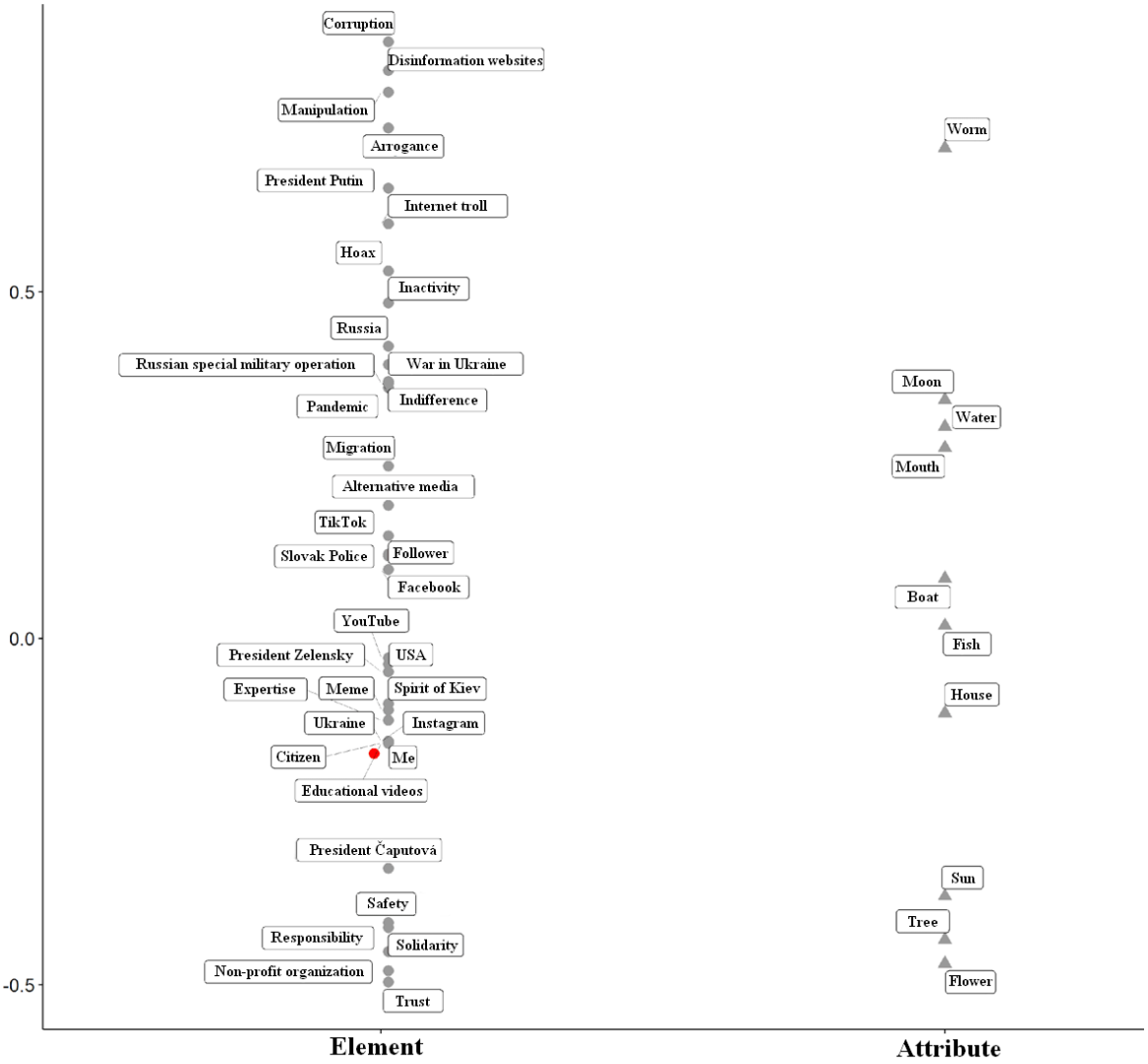

Figure 1. The representation of the position of elements and attributes in the first dimension calculated by correspondence analysis for the attributes of the first cluster.

We paid special attention to the factors of the media environment and the potential influence of media framing, the so-called precedent phenomena (war in Ukraine). We exemplify the standard negative media manipulation with significant euphemization of the Russian military invasion of Ukraine by President Putin and the equally official Russian line of interpretation, which calls the conflict a special military operation. Some political and non-political actors tried to displace the meaning of aggression from the media discourse (the so-called linguistic transformation). The reaction to the above was the creation of a number of memetic texts evoking a significant participation of Generation Z in the media culture (e.g. Figure 2, 3). With a clear and deliberate euphemism, the digital prosumers tried to influence the recipient's opinion in a parodic way and decode the manipulative media discourse of President Putin (the largest online bookstore Martinus

2023 changed the names of all book titles containing the word “war”). The ability of Generation Z to decode deliberate manipulation is documented by the associative proximity of the concepts *war in Ukraine* and *special military operation* (third segment, significantly negative attitude) in the semantic map of the perception of the military conflict in Ukraine. We note that as early as in the initial phase of the operation the members of Generation Z were aware that the soft Russian wording only serves to obscure a conflict of war proportions.

Discussion

The attitudes to information warfare in relation to war have been stable for a long period of time in Slovakia. Less than a year after the first survey, 36% of Slovaks think that our country is part of an information war led by Russia – a number that does not deviate from previous surveys. The number of those who think otherwise, i.e. that information warfare is just an excuse for the governments to restrict free speech and inconvenient media, has not changed significantly.[28] For example, the examined attitudes of a representative sample of Slovak respondents towards authoritative leaders in 2023 showed relatively high favorable attitudes in the case of President Vladimir Putin (27%), and relatively low values in the case of President Volodymyr Zelensky (33%)[29]. These results do not correspond to our findings: the group of Generation Z (university students of media and communication studies) under review has a significantly negative attitude towards information warfare and pro-Russian narratives. It seems that the digital resilience of Generation Z regarding Russian propaganda is higher in the case of standard media strategies, but we noted a low resilience in the case of the so-called positive media manipulation/propaganda (mythologisation of the Ghost of Kyiv).

Interesting findings were also made when comparing the perceptions in the countries involved. The *USA* is in the positive segment, close to *Self*, *Russia*, on the other hand, is in the negative segment. This is contrary to what the data for the entire Slovak population show where both countries show a similar sentiment. This is also underlined by the fact that *President Zelensky* is placed in the positive

[28] IPSOS: *Postoje k informačnej vojne sú na Slovensku dlhodobo stabilné. V Českej republike ubúda tých, ktorí vnímajú ČR ako súčasť informačnej vojny vedenej Ruskou federáciou [Attitudes towards information warfare have been stable in Slovakia for a long time. In the Czech Republic, those who perceive the Czech Republic as part of the information war waged by the Russian Federation are declining]*. Released on 15th March 2023. [online]. [6/2/2023]. Available at: < https://www.ipsos.com/sites/default/files/ct/news/documents/2023-03/IPSOS%20-%20Tla%C4%8Dov%C3%A1%20spr%C3%A1va%20-%20informa%C4%8Dn%C3%A1%20vojna_15.3.2023.pdf />.

[29] GLOBSEC: *GLOBSEC TRENDS 2023.* [online]. [5/1/2022]. Available at: https://www.globsec.org/sites/default/files/2023-05/GLOBSEC%20Trends%202023.pdf>.

segment while *President Putin* is in the negative segment – ranking significantly lower than *Russia*. Ukraine is placed very close to *Self*, which indicates the internalization of the problem and understanding that it is a physically and mentally close entity. These findings indicate that Generation Z is less receptive to the interpretations from the Russian side or alternative media operating in Slovakia in the overall perception of Russian military aggression.

Safety, responsibility, solidarity and *trust* have very important places in their mental space in Generation Z. They are based on two institutional anchors: *President Čaputová* and *non-profit organizations*. The importance of *safety* can be understood mainly situationally because immediately after the Russian invasion it was questionable how far the manifested power ambitions of the aggressor would reach, and – what is essential in this context – the fact that Slovakia shares a common border with Ukraine[30]. There have been speculations in the media since the beginning of the invasion that Russia might also attack Slovakia militarily[31], but rational arguments to the contrary prevailed[32]. What is important, however, is that this topic was publicly discussed, and that Generation Z evidently reflected on it accordingly. In the given situation, Generation Z voiced *responsible* solutions and *solidarity* with the occupied Ukrainians. It is significant that the concept of *indifference* and *inaction* (in contrast to *responsibility*) is only found in the third dissociated cluster, and the concept of *arrogance* in the fourth segment with a significantly negative connotation (*worm*). A real solution is offered in *expertise* – a concept located in the positive segment and close to *Self*. An ideal solution is the activity of accepted authorities, *President Čaputová* and especially – what we consider to be an interesting finding – *non-profit organizations*. Apparently, these replace the little-respected formal authorities (with the exception of the president) in the mental space of Generation Z.

Conclusion

[30] In the first weeks of the invasion, information appeared in the media about Russian operations close to the Slovak border, which raised real concerns among the Slovak public. Cf. e.g. BAR: Veľké bombardovanie len kúsok od nás! Na základňu dopadlo 30 rakiet, zanechali po sebe tragickú spúšť. [A big bombing just a short drive away! 30 rockets hit the base, leaving a tragic wake.] Released on 14th March 2022. [online]. [6/6/2023]. Available at: <https://www.cas.sk/clanok/2655095/velke-bombardovanie-len-kusok-od-nas-na-zakladnu-dopadlo-30-rakiet-zanechali-po-sebe-tragicku-spust/>. or DENNÍKN: Bombardovanie na Ukrajine je len 200 kilometrov od hraníc Slovenska. [The bombing in Ukraine is only 200 kilometres from the Slovak border]. Released on 24th February 2022. [online]. [4/2/2023]. Available at: <https://dennikn.sk/minuta/2736276/>.

[31] ČIERNY, M.: Hrozba pre Slovensko a Česko zo strany Ruska. [Threat to Slovakia and the Czech Republic from Russia]. Released on 12th March 2022. [online]. [11/6/2022]. Available at: <https://dennikn.sk/blog/2765097/hrozba-pre-slovensko-a-cesko-zo-strany-ruska/>.

[32] TASR: Podľa ministra Naďa je nepravdepodobné, že by Rusko napadlo Slovensko [According to Minister Naď, it is unlikely that Russia would attack Slovakia]. Released on 24th February 2022. [online]. [1/11/2023]. Available at: <https://www.trend.sk/spravy/j-povazujeme-nepravdepodobne-rusko-napadlo-sr-2/>.

The Russian Federation attacked Ukraine on February 24, 2022 under the pretext of "denazification" and "demilitarization" of Ukraine. The war in Ukraine has been going on for more than a year, more than 8 million refugees have fled Ukraine since its beginning, and it claimed more than 100,000 casualties on both sides. This unprecedented phenomenon attracted enormous media interest from the very beginning and the boom in pro-Russian propaganda even led to the temporary shutdown of websites spreading disinformation. The Slovak population believed the disinformation in the highest rate among the V4 countries. The factors determining low resilience against hybrid disinformation threats also include age/generation. The dominant media behavioral patterns of Generation Z (preference for short messages, non-verification of information, mosaic reading, predominance of mediated information through influencers and others) encourage subjection to empirical distortions, misinformation and hoaxes.

The results of the research study showed that the conflict in Ukraine was closely followed and intensely perceived by this age cohort, which was able to adopt a clear critical attitude towards the aggressor. The perception of the war distances this specific group of Gen-Z students of media and communication studies from the average Slovak populace and brings it closer to the European standard.

The research showed the associative closeness of the concept of Self in Generation Z with the following concepts: Instagram, popular Internet memes and educational videos – all closely linked with expertise. We also identified that the analyzed age cohort succumbed to positive media manipulation presenting the myth of the *Ghost of Kyiv* in the extremely tense period at the beginning of the Russian aggression. The ability of Generation Z to detect the standard linguistic propaganda of the Russians, which sugarcoated the war with the euphemism "special military operation," was clearly demonstrated. The negative associations of concepts such as "war in Ukraine" and "special military operation" had very similar results. The results of this study can help us understand the perception of this extraordinary event by Generation Z, which has never been exposed to an explicit and massive manifestation of violence – not only on the mental (Ukrainians are described as Slavic, sometimes even as a fraternal nation) but also on the physical plane (Ukraine is a neighboring country and university students usually come into contact with Ukrainians). The results cannot be generalized to the entire Generation Z due to the specifics of our research group/population (university students, professional knowledge of how the media function, ability to identify manipulative media techniques). The above indicates the necessity to develop and implement programs aimed at the

development of critical thinking and creativity, which are based on a thorough knowledge of the vulnerable target groups as well as the type and structure of disinformation and hoaxes and the reasons determining their virality (the students of media studies participated in special educational projects). Various systematic educational strategies to increase citizen resilience to hybrid disinformation threats should be extended to various vulnerable population groups and support participation in democratic public policies.

Recommendations

Effective media types and tools in media intervention:

- the dominant behavioral patterns of Generation Z (see above) include the preference of Instagram and participatory media communication in the form of memes and the so-called educational videos
- salient negative connotation (the associative cluster) consists of the terms hoax, internet troll, disinformation websites, President Putin, arrogance, manipulation and corruption

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