

FACETS OF THE INFORMATIONAL CONFLICT – AFFECTIVE DEGRADATION USING TARGETED PROPAGANDA

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Abstract: *The Russian informational warfare in Ukraine was in part based on a hybrid multi-perspective strategy, derived from combining classical elements (old school) of the Soviet period with aspects pertained to neocortical warfare. The military confrontation within the Ukrainian territory are propagandistically perverted into “meaningful warfare”, meant to cover the humanitarian drama and Russian interests in the region with a “polylogical emotional fog” that relativizes and devalues the statements based on proof. The efficiency of this “psychological ammunition” is obtained by propaganda on multiple media channels, in order to gain a saturation effect which will consolidate credibility and capacity to influence the target.*

The aim of this study is to investigate the emotional impact that propaganda materials used during the conflict in Eastern Ukraine in order to asses a research protocol for political propaganda materials.

Keywords: *informational warfare; propaganda; eye tracking; neuro-psychological effects; neuro-marketing*

1. THE INFORMATION SPHERE AND POTENTIAL APPLICATIONS OF NEUROSCIENCES TO THE STUDY OF NATIONAL SECURITY

The awareness of the impact made by the IT revolution and the non-conventional and asymmetric risks on the security environment, in an era of globalisation, led to the manifestation of various paradigm shifts regarding ways to approach and answer these new threats.

New terms, such as the “infosphere”, have been defined and operationalized by the need to encompass the entire informational environment, consisting of all information entities, their properties, interactions, processes and mutual relations. Therefore, we assist to the re-ontology of the living environment we operate in, given the synchronized (in time), delocalized (in space) and correlated (in terms of interactions) information tile.

The ability to control the intangible force lines of the infosphere allows us to get control over the probability of materializing events in real space (that is, of anticipating and influencing) and modifying the physiognomy of the future, and the perception of history.

Another term is "informational warfare", related to the development of the infosphere, as

well as the huge amount of information, data and knowledge used to achieve informational dominance over the opponent.

Developing ways of communicating, especially in social networks, has led to a change in the principles of communication, with impact on forms of social, economic, military organizations, etc., which will continue the revolution started by previous versions. The transition to Web 3.0 and user-centric communication, content customization and the need to know and anticipate online behaviour, as well as the use of large data and artificial intelligence (AI) will further amplify the impact on the consumer of the means of influencing / manipulating mass perceptions and opinions, one of the central objectives of the informational warfare.

In the process of manipulation, it is necessary to understand the culture and traditions of the opponent, his vision of the world and the systems of representation he recognizes, the values and modalities of communication, the semantics of verbal and non-verbal language, the way he receives, processes and organizes auditory.

The need to assess the impact of new communication technologies, become quasi-ubiquitous, by using smartphones for example, whose addressability tends to include almost any age segment, involves the research sphere of

neuroscience. Research topics such as the extent to which e-mail messages can influence attitudes and change behaviours (sympathy, violent behaviours), vulnerability and resilience to media campaigns or propaganda also show a "neuro" dimension to be investigated (persuasion neuroscience).

In our opinion, a top component of the informational warfare is the neocortical conflict, which aims to influence, even to the point of regulation, the enemy's consciousness, perceptions and will – i.e. its neocortical system - in order to control the violent behaviour (Szafranski, 1994).

For this reason, the emphasis on the development of neurosciences in recent decades has contributed to the fulminant development of the field and the emergence of interdisciplinary niches (neuro-learning, affective computing, brain-computer and brain-brain interfaces, new neuro-imaging techniques, social neuroscience, computational psychiatry, etc.) applied to national security.

2. RESEARCH DESIGN

In order to assess the contribution the neuroscience can have in dismantling multiple facets of the informational warfare, we have carried out a series of researches on the conflict between the Russian Federation and Ukraine in recent years.

A first research had been conducted in 2015, consisting of an analysis of the cognitive and emotional content of Russian propaganda to identify the main concepts used, valences and affective intensity, dominant discourses, target audiences, distribution channels and potential neuro-psychological consequences resulting from prolonged exposure to informational aggression.

The research protocol involved the monitoring of Russian media sources actively involved in reporting events in Ukraine (especially the posts considered by the Western media as producing and disseminating Russian propaganda), as well as representative media sources from Ukraine, the European Union and the United States of America. The monitoring was carried out between August 2014 - August 2015, a time span corresponding to an escalation of the armed conflict in Eastern Ukraine, as well as a diversification of narrative content and an emphasis on emotional notes, aspects that prompted the informational warfare. Written news, reports and editorials, as well as spoken wordings or official speeches, published in electronic format (on-line editions), in Russian, Ukrainian, English, and Romanian language, were monitored. After selecting the analysis materials,

key concepts were identified, using meta-search and clustering engines, the existing cognitive connections between the key concepts were mapped, using both sentiment analysis software and empirical analysis system (focus group). Research methods such as discourse analysis, content analysis, comparative compilation and assessment of cognitive-affective maps were used in the study. These steps allowed the creation of a database that was the foundation of cognitive-emotional maps, realised using EMPATHICA software.

A distinct component of the research consisted in the probabilistic identification of neural zones that are potentially influenced by exposure to cognitive and emotional content in propaganda messages using the activation likelihood estimation technique. In this respect, we conducted an evaluation of the emotional profile of 50 propaganda messages, processed with the help of the Neurosynth and Brainspell online platforms. Later on, based on the results of similar studies, we tried to determine the potential neuropsychological consequences of prolonged exposure to a propaganda campaign based on violent messages.

The limits of the study were determined by the fact that only narrations (text) were evaluated, and media coverage was limited (although we consider that the selected samples were representative), not including sources from social media, blogs, etc.

Five types of dominant speech in Russian propaganda - offensive, defensive, adaptive, intimidating and neutral - have been identified, which has facilitated the understanding of the intentions and means used during this informational warfare. Moreover, the analysis of neuropsychological effects allowed the development of a virtual map of brain activation obtained by summing up the emotional and cognitive effects identified in the analysed propagandistic materials.

Our main findings were that most of the areas activated are located in the frontal-temporal area (prefrontal cortex, insular cortex) and the limbic system (hippocampus, amygdala, cingulate gyrus, para-hippocampal gyrus, limbic cortex) – Brodmann areas 9, 10, 11, 12, 32, 35, 25, 46, 17. A further connectivity study between targeted areas allowed a more thorough understanding of emotional circuitry involved in the affective reaction resulted from propaganda exposure.

This broad activation pattern involving a variety of brain structures is due to both the transmission of information by using multiple sensorial channels (such as visual - photos and videos – or auditory – the audio soundtrack from

the video reportages) and the multitude of sensorial details presented in the propaganda messages.

By comparing the virtual dominant brain activation pattern with other well-known activation patterns, we obtained the following proportion (degree) of similarity: 80% stress, 75% anxiety, 65% depression, 60% anger, 55% generalized anxiety disorder, 40% PTSD-like, 25% major depression, 15-20% PTSD.

Frequent use of signal-images and phrases rich in emotional content was observed since the beginning of the conflict. The analysis of the neuropsychological impact proved that the propaganda was tailored in such a way to produce a deterrent effect and intense psychological inhibition (in the end most of the Russian media reports were declared fraudulent, or of uncertain origin).

For example, the images that are showing violent individuals, antisocial or immoral actions are activating the parahippocampal right gyrus, right frontal median gyrus and the left amygdala. Another set of images frequently used are showing human faces (live or dead adult civilians, children or Ukrainian soldiers) expressing intense emotions of fear, terror, anxiety.

The processing of this visual stimuli involves a multitude of visual areas such as the right superior occipital gyrus, left insula and left thalamus (sad faces); right cingulate and anterior cingulate gyrus, the right parahippocampal gyrus, left cerebellum, subcortical regions such as the left globus-pallidus and the right claustrum and prefrontal regions such as the bilateral inferior frontal gyrus and the right middle frontal gyrus (angry faces); the bilateral amygdala and fusiform gyrus, right cerebellum, left inferior parietal lobule, left inferior frontal and right medial frontal gyrus (fearful faces); the left amygdala, fusiform gyrus, bilateral middle temporal gyrus, left middle frontal and right inferior frontal gyri, right insula, left pre-central gyrus, left inferior parietal lobule and left thalamus (disgusted faces)

This is consistent with our research hypothesis that the emotional narratives selected in our research can alter a person's beliefs, attitudes and intentions, may consolidate memory, cue heuristics and biases in judgment or influence group distinctions, framing the world in which an individual lives while providing an alternate form of rationality that may lead a person to yield to persuasive calls to action. The use of storytelling and narratives as powerful cohesive elements of cultural identity allows the discrete insertions of ideological memes as part of a narrative rationality disguise under an acceptable and apparently

inoffensive cultural skin (Barna & Dugan, 2015a).

Another study, conducted in 2016, aimed at monitoring the Romanian media during the same period (August 2014 - August 2015), focusing on the identification of media materials (news, reports, editorials published in the electronic environment in Romanian, English and French language) which referred to the crisis in Eastern Ukraine, as well as official and public statements of Romanian political authorities or personalities.

The main topics of discussion, target audience, used journalistic methods and potential impact on the audience's opinions were investigated. The objective of the study was to analyze the cognitive-emotional impact of the information on this conflict on the native public, as well as how the reflection themes at European level on the crisis in Eastern Ukraine are reflected in the Romanian media.

The methods used are similar to those in the first study, as we tried to be able to obtain results that are conducive to a comparative analysis. For this reason, the actions which the Russian Federation was associated with, regarding the crisis in Eastern Ukraine, were analyzed.

Our analysis has highlighted five ways the Romanian media had been reporting about the crisis in Ukraine:

- a strong positive perception of the allies of Ukraine - NATO, the European Union, the United States of America, Great Britain, France, Germany, Poland, Turkey, Republic of Moldova, Bulgaria;

- a positive perception of the measures and actions taken by the European Union, NATO and the United States in the context of the Ukrainian crisis;

- a negative perception associated with the actions directly or indirectly attributable to the involvement of the Russian Federation in the conflict (the Donbas rebels, the Donbas Republic, the Novorossia plan, the crash of MH-17 flight, etc.);

- a negative perception of the adverse consequences of the conflict over the Ukrainian population and institutions (loss of human lives, humanitarian crisis, loss of Crimea, destruction of the health system and urban infrastructure, etc.);

- destabilizing scenarios of the crisis in Ukraine (prolonged conflict, economic crisis, political instability, risk of regional conflict, risk of contamination in the region, ecological or unconventional crises).

The study of the Ukrainian conflict media coverage indicated that the possibility of an informational aggression of the type and scope of the one realized in Ukraine is improbable in Romania, but not impossible in a modified form.

The comparative analysis with the situation of Ukraine highlights a number of factors that have the chances of reproducing, even on a smaller scale, the type of informational warfare seen in Ukraine - the lack of a significant Russian or Russophile population, the fact that Romania is not a former member of the USSR and the CIS, the nuances of the Romanian-nationalist and anti-Soviet communism, the economic and financial independence from the Kremlin, the absence of the local labour force in the Russian Federation, the absence of a common border with Russia, the higher per capita income, the deep reforming of the defence and security sectors and, above all, the accession to NATO and the EU. However, for the Romanian population, the crisis in the neighbouring state has highlighted the need to increase national defence capabilities, but also the practical implications of joining Euro-Atlantic security structures.

The "subliminal" perception of the Romanian public about the Ukrainian crisis is that of a real "ghost-model" of a similar scenario that would have involved Romania, especially since there were similar plans during the communist era, which fortunately have never been completed.

Likewise, the similarities of Ukrainian "Maidan" with the Romanian Revolution have reached another negative emotional note for the Romanian population, both through the loss of human lives and by the fact that it represented the beginning of a long and difficult "transition" road that had a strong impact on quality of life and organization of society. However, at the end of this complicated transition process, Romania has been able to integrate into European and Euro-Atlantic structures and finds itself today as the "European neighbour" for two former Soviet states, Republic of Moldova and Ukraine. This perception, of the existing fallacy between the reformed East and integrated into the globalist flows and the one still in the post-Soviet mirage, is frequently highlighted in the media and is still a reason for reflection on both sides of the border (Barna & Dugan, 2015b).

In 2017, in an attempt to overcome the limits of the two studies mentioned above, generated mainly by the analysis based only on the investigation of narratives, without having an evaluation of the subject's experience to the exposure to propaganda messages, we have initiated a third study, in which we evaluate propaganda videos using neuro-marketing methods. The experience of the two previous studies has helped us to observe some major similarities between some propaganda messages and the advertising type that allow content to be interpreted in terms of criteria, language and

methods used in marketing. This substitution of journalistic content with the advertising-like type, the use of common channels for disseminating the message, the adaptability of the content to be accessible to a wider audience, and perhaps the involvement of some advertising experts has led us to this approach.

This third study is an attempt to establish a protocol for the evaluation of Russian propaganda material from August 2014 to August 2015 using neuro-marketing specific methods in order to obtain indicators on relevance, virility, memorability, cognitive and emotional impact at the moment of viewing, the type of attitudes it can influence, identifying the most timely and accessible methods of real-time investigation of the phenomenon, and the development of response strategies.

The evaluation was based on a protocol similar to that used in the first studies, but adapted and improved for video, followed by monitoring of physiological responses in response to video viewing: Electroencephalographic activity (EmotivEpoch 14-channel EEG - AF3, F7, F3, FC5, T7, P7, O1, O2, P8, T8, FC6, F4, F8, AF4 (International 10-20 system), MindWave Mobile with a single channel), visual interaction (Tobi eye-tracking device and CoolTool platform) and galvanic skin response (a channel).

A first hypothesis of this comparative analysis of instrumental perceptions and recordings is that propaganda promotes cognitive biases that interfere with the characteristics of collective memory, particularly by altering collective perceptions about the past, addressing to an ethno-geographic target audience especially the ex-USSR space, Orthodox Christians), ensuring dominance in competition with similar memories.

The main method is post-event disinformation and generation of an alternative and competitive version of reality by manipulating the media image of the event, followed by repetition to over-saturation and stereotyping with similar versions, but from seemingly independent sources. Another memory biases encountered in Russian propaganda materials are gist-based and associative memory errors, when people falsely recall or recognize an item that is perceptually or conceptually related to an item that they did encounter previously, but they fail to recollect specific details of an experience and instead remember general information or the gist of what happened. A different type of memory distortion that was used in order to create false memories is imagination inflation which is based on the fact that when we are imagining a novel event, we tend to combine, in a perverted way, elements of memory and

imagination. This cluster of effects is an ideal tool to socially reshape the past in the process of collaborative remembering and probably influence the future social behavior. Thus, the perception of events is easier to validate and integrate into a more general, simplified and teleological valence, the emotional component being the facilitator in the process of fixing the cognitively deformed construct, contributing to circumventing the authentication process of the information.

The main impediment is the consistency of this construct in the context of the existence of alternative, competitive and more credible sources. That's the reason why removing them from any form in the mental space of the target audience is a priority. The analysis of the impact of propaganda material presented by Russian television channels allowed the investigation of the subjects' reactions to soft, well-dressed variants in the form of news (or opinion streams, alternative news sites, fake-news, Kompromat news). In particular, we have watched the reactions to sophisticated and credible messages (such as "conspiracy theory") that accredit the idea that informational aggression is a permissive component of an international dispute based on implicit complicity between collaborative parties in an adversarial collaboration, which prefers an imagological competition to another more dynamic ways of conflict.

Such ideas are being launched on the informational market, especially during the European Union State Members' elections or debates in the European Union's top-level institutions, in order to project the image of a divided Europe, "multi-speed Europe", in which decisions are taken in a non-transparent and non-unanimous way regarding the relationship with the Russian Federation.

Another aspect identified regarding the increase of the memorability of the video propaganda materials, especially among youngsters, is the use of extrinsic stimuli (music, surprise, subtitling in English, the presence of a narrative thread) or polarization of attention by presenting some elements of violence and making incredible, shocking statements. To the contrary, disapproval and disinterest were observed when pro-Russian paramilitary symbols or interviews with the local pro-Russian population were used, with a negative preconditioning effect, probably due to lack of credibility.

3. CONCLUSIONS

The central aim of the informational warfare was the extension of the psychological effects of

fear in the absence of real stimuli (such as the physical proximity to the conflict areas or a real danger) and the extension of a "halo effect" (on the entire Ukrainian population), especially in the areas situated far away from the conflict.

The prolonged effect of fear and uncertainty generates a chronic state of anxiety that interfere with the individual capacity of psychological resilience, leading to a depletion effect and lack of coping mechanisms.

Other psychological consequences of the informational warfare could be the regress to a psychological phenotype of primary resilience, ancestral, pre-societal; the self-isolation of the individual from society, placing himself in anonymity, detaching himself from any resilience social network; the alteration of perception - the ubiquitous presence of the (hyperbolized) aggressor – erasing the demarcation line between reality and imaginary from the mind of the target; submission, abandonment of defense capabilities, the necessity for consensus with the aggressor (NATO StratComCoE, 2014).

Our research highlights the fact that while the tactical objectives of the informational warfare are temporally limited, in the long run, it is intended to modify, the audience's way of thinking in order to legitimize and validate the source and propaganda content as a viable alternative to truth, vulnerability and awareness of informational stimuli and the development of sympathy to self-correction. The simplest method is the incitement to a symmetrical behaviour that generates a "spiral of hatred" to self-fuel the propaganda machine and prolong the process.

A number of recent developments, such as the predicted use of artificial intelligence within social networks, mixed-purpose tools, collaborative and adaptive spaces, the development of neuro-interfaces and other neuro-technologies bind the rethinking of the relationship between cyber security and misinformation and propaganda campaigns (Dugan, 2015).

Increasingly easy access to personal information, including the use of this data in information campaigns, involves the adoption of technical security solutions and the elaboration of a protective education system especially for decision-makers, the main targets of misinformation campaigns.

Given the significant increase in the impact of propaganda material through the use of national symbols and insignia, cultural identity or native language of the target public, it is necessary to adopt a cultural security strategy, including in the electronic environment.

The ability to use social networks to disseminate personalized messages, including marginal segments of audiences with strong beliefs that might be attracted to atypical, deviant, violent content to incite antisocial or self-aggression, underscores even more the need for establishing a minimum set of rules and forms of legal responsibility (Thomas, 2004; Franke, 2015).

Furthermore, we emphasize the role of neurosciences in +4th generation conflicts, and especially in the case of the informational warfare, a “contactless” form of aggression. As seen in the last year, the informational warfare means having an inherent potential to amplify the “strategic uncertainty” and the unpredictability degree in international relations.

In the 21st century, the defeat of devious political systems based on corruption and hate ideologies can be achieved when citizens are refusing to believe and become immune to propaganda. Targeting the ideological roots of aggression and extremism and limiting the spread of vicious propaganda will eventually lead to loss of political momentum and legitimacy of corrupt and aggressive regimes.

In this respect, we need new metrics and methods of understanding in real time the complex psychological effects that a concentrated media campaign can produce.

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