

COGNITIVE WARFARE: BREAKING THE OODA LOOP BY MAINTAINING THE WRONG VIEW OF THE SITUATION

Assist. Prof. Yordanka Peteva

Nicola Vaptsarov Naval Academy

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Abstract. The paper examines the theoretical aspects of „cognitive warfare” through the concept of the OODA loop (John Boyd). In the four stages of the OODA loop, the main methods for achieving the goals of cognitive warfare are considered: destabilization, influencing, and changing the perceptions and behavior of large target groups in modern democratic socio-public relations and the dynamic security environment. The cognitive biases that have the most significant impact on the cycle stages, the means of manipulation, and possible measures to counteract and reduce their negative influence are described. In the first two stages, „observation” and „orientation”, the most common malicious methods are described, and the third and fourth stages, „decision” and „action”, are directly and functionally connected, and result from the examined elements.. In this regard, cognitive warfare methods of action can lead to disastrous consequences when applying the OODA cognitive cycle, whose algorithm is often used to respond to crises in security and defense.

Keywords: cognitive warfare; OODA loop; cognitive biases;

1. Introduction

In the beginning of the 21st century, „cognitive warfare” was established as a new substantive aspect in contemporary international conflicts. Cognitive warfare can serve as a tool to „program” people's consciousness by changing their attitudes, leading to a change in their behavior. This is most often accomplished through the effective use of real or manipulated information (misinformation), exaggerated facts, or fabricated news (disinformation). The goal of the malicious cognitive influencer is to take advantage of the fear, anxiety, or beliefs of the adversary. The information revolution and progress in the development of artificial intelligence allow the accurate identification of vulnerabilities of a specific person or group of people. In exerting cognitive influence, the attacks are organized, structured, and directed in such a way as to change the thinking and behavior of political leaders and their teams. Cognitive warfare poses a direct threat to democratic processes and the stability of society, as its main goal is to undermine trust in institutions. If conducted successfully, it can significantly influence individual and group attitudes, beliefs, and behaviors in favor of one's goals.(Claverie 2022).

2. Theoretical background

According to several military theorists, elements of Sun Tzu's teaching can be found in the concept of cognitive warfare because all wars are based on lies and deceit. The term „cognitive warfare” was first used in the USA in 2017. The purpose is to describe the means of action and influence of a state or group that seeks to „manipulate the enemy or the cognitive mechanisms of its citizens to weaken, infiltrate, influence, or even subjugate or destroy.”(François du Cluzel 2021). Oliver Bakes and Andrew Swab of Harvard's Belfer Center define cognitive warfare as „... a strategy that focuses on changing the way a target group thinks and thereby decides how to act” (Bernal 2020).

Cognitive warfare is an unconventional form of warfare that uses means of influence to manipulate and change the way individuals and groups perceive reality and make decisions. Unlike traditional areas of military confrontation, cognitive warfare does not use physical force to subdue its enemies but employs a combination of psychological operations and cyber tools to achieve its goals. The primary goals of cognitive warfare are destabilization and influence (Bernal 2020). They can be implemented both together and separately. Destabilization can be seen as a disturbed functioning of processes in society, caused by purposeful actions that include but are not limited to political, socioeconomic, military and informational methods (Hoyle et al. 2022). The growing polarization in the beliefs of certain groups in society, the feeling of disappointment and mistrust in state institutions, and the disruption of the unity and cooperation of the population are some of the main reasons for the destabilization of society. Malicious actors use existing conflicts or create new conflicts to divide people. They can be expressed in:

- deepening of social inequality;
- delegitimization of governments;
- isolation of individuals/groups;
- interruption of key economic activities;
- disruption of the activity of objects of the critical infrastructure;
- disruption of communications.

The second main goal of cognitive warfare is to influence both individuals and certain target groups by manipulating their perceptions, understandings, and interpretations of the facts of reality. Through the types of deliberate influence, malicious actors can steer the actions of individuals and target groups in the direction they want (Bernal 2020). Moreover, they focus their

actions on influential politics, economics, scientific or social leaders. To reach a wider audience, the easily accessible digital information environment contributes to the uncontrolled spread of disinformation, fake news, and propaganda. Arden Dahl describes cognitive warfare as a strategy that affects the OODA loop (Observation-Orientation-Decision-Action) developed by US Air Force Colonel John Boyd. The OODA loop is a practical concept designed to represent rational thinking in confusing or chaotic situations. It consists of four stages - observation, which helps to orient the participant in the situation, then to decide on an appropriate course of action, and the last stage to take action. Cognitive warfare provides an advantage to the attacker by reducing the speed of the OODA loop, reducing its accuracy, or both (Dahl 1998). Although, in the opinion of some military theorists, the „orientation” phase is of primary importance, in our opinion, the first phase of the cycle - observation - should not be underestimated, since the wrong initial view of the situation created can compromise the others processes in the cycle – orientation, decision-making and action.

In the first stage of the cycle - observation, the information that reaches the recipients is of key importance for forming their opinions and attitudes.

In the process of observation, people are constantly processing the information they receive from the outside world. In some cases, however, incoming information is perceived in a way that can lead to a distortion of reality. These are the so-called „errors” that the human mind makes when evaluating incoming information. To explain this phenomenon, Amos Tversky and Daniel Kahneman in 1972 introduced the concept of „cognitive biases” (Kahneman et al. 1982). Cognitive bias is defined as a systematic error in thinking that occurs when perceiving information from the surrounding environment. Often, the human brain uses simplified rules and shortcuts to make decisions that are based on experience, called heuristics. In most cases, they serve to facilitate information processing, but they can also lead to irrational interpretations and judgments. Cognitive biases are most often unconscious decision-making processes that allow individuals to be influenced without them realizing it. They can affect their objective judgment, influence the way they perceive and process information, cause distortions in thinking, and prompt them to make decisions based on a biased opinion. As a consequence of this, an inaccurate assessment of the situation and untimely identification of threats is made, which makes them a target for adversaries who seek to deceive or mislead them. To date, researchers have described

numerous cognitive biases, but those that significantly influence the stages of the OODA loop are:

- anchoring bias - this is the tendency to respect the first information that is received (Teovanović 2019). The information that is received first is „anchored” and considered as the starting point for any subsequent information. In cases where individuals or target groups are first exposed to information that is „manipulated”, it will become „anchored” and these individuals would have difficulty trusting other information.

- confirmation bias – a tendency to accept reliable information that matches people's beliefs and beliefs and to reject evidence that does not match. In this case, individuals tend to prefer information that confirms their beliefs. Most often, people who have a certain opinion on a given issue seek information that confirms their views and interpret the information in a way that supports their ideas. Even in cases where the evidence presented is unconvincing (Suzuki, Yamamoto 2021). Additionally, they pay more attention and remember details in a way that confirms their attitudes.

- attention bias - this bias determines the tendency to pay attention to some details while ignoring others. It affects not only the way we perceive information from the world around us but also the decisions people make because of these perceptions. According to some specialists, this type of bias may have evolutionary roots. Our ancestors had a better chance of survival when they paid more attention to risks and threats in the environment and ignored less dangerous ones (Azriel, Bar-Haim 2019). This may also be one of the reasons why people are more likely to pay more attention to negative news.

- halo effect - also known as the „physical attractiveness stereotype” or the „beautiful is good” principle (Liebregts et al. 2020). The overall impression of a given person influences how their individual qualities and characteristics are perceived. This is especially true for physical attractiveness, which affects the way other traits are evaluated. Attractive people often receive higher ratings on other positive traits as well (Batres 2023). This means that attractiveness can influence the way we perceive a person and their qualities.

3. Conclusion

Cognitive biases affect people's perceptions and thinking, regardless of age, gender, or social affiliation. Very often these weaknesses are used by malicious actors to influence and manipulate individuals, large groups of people, or entire societies.

Violations in the monitoring process can also be achieved by spreading disinformation, fake news, deepfakes, propaganda, and online manipulation. Very often the users of this information cannot recognize it as „manipulated”. The reason for this is that when processing raw information, the human brain uses a series of adaptive mechanisms to systematize and organize information as quickly and efficiently as possible (Spanò 2021).

In order to not become a victim of the negative cognitive impact, it is necessary to follow some basic rules.

First, one must assess which of the things happening in the external environment have a direct impact on our way of thinking and acting.

Secondly, to what extent the information flow from outside can have an indirect impact on our behavior and attitudes.

Thirdly, which of the facts related to current events may have an impact at a later stage.

Finally, to avoid negative cognitive influence, we must rely on previous experience in solving similar events from the recent past. The next element of the OODA cognitive cycle is orientation. It is of key importance because at this stage the information received based on observation is processed, filtered, and interpreted (Rule 2013). In the case of maliciously manipulated input data, the orientation process can go wrong and lead to incorrect decisions and actions, which in some cases can be fatal.

According to John Boyd, the orientation stage is influenced by five main factors - incoming information, cultural traditions, previous experience, genetic inheritance, and skills of analysis and synthesis (Johnson 2023). For adequate orientation in the situation, it is crucial to how close the perception of individuals is to reality on the one hand and on the other the speed of the process.

The last two stages of the OODA loop „decision” and „action” are in a direct functional relationship and consequence of the already considered elements.

In the middle of the third decade of the XX century, cognitive warfare emerged as a new form of modern warfare. With the mass adoption of digital technologies in people's daily lives, malicious actors skillfully use the information space to manipulate their perceptions and attitudes. In cognitive warfare, the effects are so skillfully orchestrated, structured, and targeted as to mislead

and change the thinking of political and military leaders and their teams. In this regard, cognitive warfare methods of action can lead to disastrous consequences when applying the OODA cognitive cycle, whose algorithm is often used to respond to crises in the field of security and defense.

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Yordanka Peteva – Assistant professor

ORCID iD: 0009-0004-0782-1124

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Nikola Vaptsarov Naval Academy

9002 Varna, Bulgaria

e-mail: y.peteva@naval-acad.bg