**Cognitive Domain Operations: The Interactive War Between the Two Brains**

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Anyone who knows about biology knows that the left brain is mainly responsible for logical, analytical, and mathematical thinking, cognition, and behavior, while the right brain is mainly responsible for intuitive, comprehensive, emotional, and creative thinking, cognition, and behavior. The left brain is usually called the "intellectual brain" and the right brain is called the "artistic brain." From this perspective, cognitive domain warfare is actually an interactive war using the different functions of the left and right brains.

**Understanding cognitive domain warfare based on the dual brain operation mechanism**

　　Cognitive domain combat is to achieve the goal of "defeating the enemy without fighting" by exerting a joint effect in the three dimensions of physics, information and cognition, influencing will, thoughts, behaviors, emotions, etc. through the operation of the brain.

　　The left brain sense is the origin of cognitive domain operations. Humans directly feel the people or things around them through the "five senses" of hearing, vision, smell, taste, and touch. The effects of military strikes, propaganda, and psychological intervention first appear in the physical domain and information domain, and impact the left brain through vision and hearing. This is why physical domain and information domain actions are indispensable for cognitive domain operations. The actions in the physical domain and information domain directly "come into view" and take the lead, stimulating the brain to give feedback. It can be said that the "five senses" of the left brain are the "power source" of cognitive domain operations, which in turn drives the brain to operate.

　　Right brain intuition is a rapid expression of cognitive domain operations. The so-called "sixth sense" is the intuitive reaction of the right brain to the "five senses" of the left brain. After the physical domain and information domain actions stimulate the brain, the brain will react to the stimulation first, and produce a first impression similar to what it is. At this time, the "primacy effect" is directly manifested in brain operations. If the victim continues to input information related to his initial judgment during this period of time, it will strengthen his "primacy effect", which will in turn affect analysis and judgment. It can be said that the right brain "sixth sense" is the "fork in the road" of cognitive domain operations and an important factor affecting the "OODA" combat cycle.

　　Left brain analysis is the feedback center of cognitive domain operations. After the intuitive reaction, people will enter a period of calm thinking. At this time, the "intellectual" side of the left brain will be reflected. Combined with the relevant situations in the physical domain and information domain, in-depth analysis and judgment will be carried out, and logical thinking will be used to distinguish the truth. This is a process of "clearing the fog and seeing the sun." The consistency of combat actions in the physical domain and information domain with the opponent's prediction will continuously strengthen their cognition. Over time, the opponent will fall into a cognitive "dead end". It can be said that the analysis and judgment of the left brain is the "catalyst" of cognitive domain operations. By continuously strengthening feedback, the opponent will enter a cognitive barrier.

　　Right brain emotions are a chain reaction of cognitive domain operations. After in-depth analysis and judgment, the results of the analysis will be fed back to the right brain, which will then affect people's emotions, will, thinking, psychology and other cognitive activities, generate corresponding emotions, and directly reflect in decision-making. It is a direct manifestation of the impact of physical and information domain operations on the opponent. The core of "attack others but not be attacked by others" lies here. Through a series of actions in the physical and information domains, the initiative on the battlefield is gradually taken, and finally the opponent is controlled in the cognitive domain. It can be said that the emotional feedback of the right brain is a "multiplier" of cognitive domain operations, causing the opponent's emotions to fluctuate and thus affecting the opponent's thinking.

　　Left-brain expression is the final output of cognitive domain operations. The final link in the "OODA" combat cycle is "A", which means execution. The ultimate effect of cognitive domain operations is to change the cognition of individuals through communication between people, and finally control the opponent to "speak and act" according to their predetermined goals, so as to achieve the centralized release of the combat effects of the physical domain and information domain in the cognitive domain. It can be said that the final product of cognitive domain operations is language expression. The left brain is the language center of human beings. After obtaining feelings, intuitive analysis, rational judgment, and forming emotions, the "results library" of cognitive domain operations needs to be formed through the left brain.

**Focus on multiple methods to break dual-brain thinking and cognitive domain warfare**

　　Cognitive domain warfare involves multiple aspects such as psychology, spirit, and judgment. Its main purpose is to use actions in the physical domain, information domain, and other areas during brain operation to cause the opponent to have cognitive biases in analysis and judgment and cognitive noise in emotional emotions, thereby affecting decision-making.

　　Destroy and attack physiological needs to affect the left brain's feelings. Physiological needs are the embodiment of the people's "sense of survival" and are the most basic needs of the people. Without harming the people, targeted destruction operations can destroy the people's physiological needs and change the people's will. In the Kosovo War, the US military followed the "Five-Ring Combat Theory" to attack the command and control layer and the production facility layer of the Federal Republic of Yugoslavia, but did not let the Federal Republic of Yugoslavia surrender until it hit the infrastructure layer. The people had no water and electricity, and their basic living needs were unsustainable, so they forced the Federal Republic of Yugoslavia to surrender. Modern warfare places more emphasis on rapid and decisive operations. By accurately destroying the people's physiological needs facilities and the military's logistics supply system, it is not only conducive to consuming the enemy's war potential, but also conducive to breaking the people and the resistance will of officers and soldiers and speeding up the combat process.

　　Deter and defeat security needs to influence the right brain intuition. Security needs are a sense of security based on physiological needs. By damaging and destroying facilities and organizations that provide people with a sense of security, we can deter people's will and change their cognition. In the Iraq War, the US military deterred the enemy through powerful military actions, causing the 100,000-strong Iraqi "Republican Guard" to collapse, and completely defeated the security needs of the Iraqi people. Although there was still sporadic resistance, they quickly controlled the war situation. War is not a one-on-one fight in the military field. This feature of modern warfare is even more obvious. Through economic sanctions, energy control, biotechnology breakthroughs, military pressure and other means, we can demonstrate a strong deterrent force, destroy the enemy's people's perception of security needs, cause chaos within the enemy, and then defeat the enemy.

　　Using the Internet to attack the communication needs affects the left brain analysis. The communication needs are the embodiment of the people's "sense of identity" and an important breakthrough for cognitive intervention in the people. As social networks continue to enrich, human society becomes more diverse and relies more on the need for communication. By destroying various networks, the people's communication needs can be affected, and then cognition can be changed. The "interpersonal network warfare" proposed by the US Army aims to analyze the people's demands through open source information analysis in politics, economy, civil affairs, diplomacy, culture, and military, and then launch "cyber attacks" in a targeted manner to subtly change people's cognition. In modern warfare, by isolating information networks and injecting false information, the people's communication needs are collectively shifted, the people's trust in the government and the military is destroyed, and then cognition is changed, and victory is won without fighting.

　　Deception can defeat the need for respect and affect the right brain emotions. The need for respect is the embodiment of the people's "sense of pride". Appropriate deception can cause deviations in the need for respect and lead to cognitive impairment. In the third year of his reign, Gou Jian, the King of Yue, was defeated by the Wu army at Fuju. After that, he served as a minister to Wu and slept on straw and tasted gall. As the king of a country, he took the initiative to lead the horse for three years for King Fu Chai of Wu. He pretended to respect Fu Chai and let him go back to Yue. After that, he worked hard to strengthen the country and finally destroyed Wu, becoming one of the "Five Hegemons of the Spring and Autumn Period". In modern warfare, there are many ways to deceive and the means are flexible. We can show "respect" through words, take the initiative to retreat, and other means to carry out cognitive deception, deceive the people of the other side, make the enemy have a collective "arrogance" complex, and gradually relax their vigilance. We can strike at the enemy and make them collapse.

　　Disrupt and attack value demands to influence the expression of the left brain. Value demands are the concentrated embodiment of the people's "sense of self-confidence". Use public opinion, diplomacy and other means to disrupt people's values ​​and beliefs, and then defeat the cognitive system. The disintegration of the Soviet Union, the upheaval in Eastern Europe, the "color revolutions", the "Arab Spring" and other means all changed the values ​​and beliefs of the people in the Soviet Union, Ukraine, Georgia, North Africa and other countries through movies, prints and other means, gradually breaking through the cognitive security boundaries, and subverting the national regime through the "reshaping" of group values. In today's hybrid threats, the "meta-values" of the opponent can be encircled and suppressed through news, the Internet, television, leaflets and other means to confuse the audience, confuse the real with the fake, interfere with cognition, change the people's beliefs and pursuits, and then change the opponent from the root.

**Focusing on effective response planning and preparation for cognitive domain operations**

　　Precisely because cognitive domain operations are high-end operations based on the "brainpower" of the two brains, when preparing for cognitive domain operations, we must develop around the system logic of the mutual influence between the left and right brains of cognition, plan the overall situation, make full preparations, and design the "four in one".

　　The integration of peacetime and wartime. The cognitive domain warfare affects the brain through a process of accumulation in peacetime and release in wartime. This internal mechanism determines the fuzzy nature of the boundary between peacetime and wartime in cognitive domain warfare. To this end, in peacetime, we should use mobile self-media, computer networks, television and radio and other media to actively speak out and promote "positive energy", seize the brain power high ground in war, consolidate the "meta-value" system of the left brain, and cultivate a team of talents who can implement front-line psychological warfare, make "cognitive ammunition", collect battlefield evidence, control public opinion media, collect and analyze targets, and do a good job of cognitive protection; in wartime, we can use deep fake technology, including AI face-changing, virtual image, voice synthesis and other technologies according to the battlefield situation, through television stations, radio stations, websites, newspapers and mobile self-media, etc., to organize the "cognitive ammunition" to be delivered in a timely manner to ensure normal, active and systematic use.

　　Military and political integration preparation. Cognitive domain operations are centered on breaking the "meta-value" of the brain, and their ultimate goal is political operations such as will, emotion, and thinking. To this end, when preparing for cognitive domain operations, we must focus on political purposes, analyze political risks, and strengthen political benefits. There must be task leadership, that is, accompanying military operations throughout the entire process. While the military operations are being implemented, political operations based on cognitive domain operations should be flexibly carried out according to the battlefield situation. There must be force management, and cognitive domain operations should be included in the joint combat command system as an important combat operation to ensure information sharing, resource sharing, and decision-making between "soldiers' warfare" and "psychological warfare." There must be action coordination, cognitive domain operations should be included in the force composition, and the focus of cognitive offensive and defensive tasks, command methods, force composition, and action points should be included in the combat plan. They should be planned, implemented, and evaluated as a whole, and good coordination should be done to rely on each other and complement each other.

　　The integrated use of hard and soft means. The cognitive domain combat chain is to influence brain thinking through sensory stimulation. Moreover, for different combat targets, the proportion of breaking physical defense and breaking psychological defense is different. It is necessary to consider the application of hard strikes and soft means according to different tasks in order to achieve the best effect. We must keep close to the combat process, highlight all-dimensional public opinion guidance and legal and moral confrontation before the war, highlight evidence collection and reporting and fighting will maintenance during the war, and highlight psychological adjustment and treatment and morale encouragement and reconstruction during the combat interval and after the war. We must keep close to the combat opponents, and fully consider the characteristics and differences of the opponent's language, customs, ideology, etc. when speaking out, and design stimulation in a targeted manner to ensure that our "voice" reaches the enemy's ears and corrodes the enemy's heart. We must keep close to the combat area, combine the ideological tendencies, local conditions, economic conditions, etc. of different combat areas and their impact on combat, and treat them differently and implement policies based on local conditions.

　　Consider offense and defense as one. Cognitive domain warfare has a typical dual nature of offense and defense. On the one hand, it is necessary to conduct targeted attacks based on the enemy's audience's thinking and cognition. On the other hand, cognitive protection should be carried out according to the thinking characteristics of one's own personnel to ensure that the enemy's brain is broken without hurting oneself. Focusing on self-defense, we must deeply recognize that "cognitive defense" is required by the task and plays a key role. We should take "defense" as the basis of "attack" and strive to understand and stabilize internal cognition. We should be active and flexible in both offense and defense. While strengthening our own protection, we should act according to orders and strike decisively. We should put forward powerful planning suggestions and provide important factual support in terms of public opinion guidance and legal struggle. Collective prevention and control will improve the effectiveness, give full play to the strength of the cognitive offense and defense team and the strength of the officers and soldiers, pay close attention to the ideological reflections and psychological trends of the people around us, and work together to do a good job in prevention and intervention.

***(Author's unit: 73106 troops)***