Some Thoughts on Promoting Cognitive Domain Warfare

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Abstract. With the deepening of mankind's understanding of war and the wide application of artificial intelligence technology, combat confrontation has expanded from the physical battlefield to the cognitive battlefield, from the tangible battlefield to the invisible battlefield, and the cognitive space composed of people's mental and psychological activities is becoming a new field of warfare. Whether or not they are proficient in planning cognitive domain operations will greatly affect the direction and outcome of the war. A deep understanding of the connotation, attributes, and characteristics of cognitive-domain warfare and an accurate grasp of its winning mechanism and development trend are the keys to understanding the context of the battlefield and winning modern warfare. Keywords: Cognitive domain; Winning mechanism; War deterrence operations

**1 Introduction**

Throughout modern warfare, cognitive domain warfare has become a popular field of research for various countries. The winning mechanism of cognitive domain operations is a basic logical framework for the study of cognitive domain operations, which is of vital value for strengthening the preparation of cognitive domain operations, the selection and optimization of cognitive domain combat strategies.

**2 The Basic Connotation and Essential Attributes of the Concept of Cognitive Domain Operations**

In recent years, with the deepening of the study of the laws of mental activity such as the senses, thinking and subconscious of the brain, the cognitive field is regarded as the key field to seize the initiative in future wars.

**2.1 The Concept of Cognitive Domain Warfare was Proposed**

Cognition is an important concept in the field of psychology, which generally refers to the information processing activities of individuals in the objective world. Germany social psychologist Kurt Lewin was the first to put forward the "cognitive field theory", arguing that "Human mental activity occurs in a psychological field, and the vector of individual behavior depends on environmental stimuli and internal dynamics". In 2006, the US armed forces comprehensively summed up the experience of modern warfare in "Joint Information Operations" and for the first time put forward the concept of "cognitive domain," one of the three dimensions of operations, marking its important position as an important operational dimension. In 2017, the concept of cognitive domain operations officially entered the US armed forces' operational theory system, emphasizing that the form of warfare is transitioning from a war of attrition to a cognitive war. In 2020, all NATO member states jointly defined cognitive domain warfare as "a joint arms tactic that combines non-kinetic combat capabilities such as cyber, information, psychological engineering, and social engineering, and is an ideological war that psychologically depletes the receiver of information, turns every ordinary citizen of the enemy into a weapon, interferes with, destroys, disintegrates, and endangers society, thereby helping oneself gain strategic advantage."

**2.2 The Basic Connotation of Cognitive Domain Warfare**

Cognitive domain warfare is a form of warfare that uses means in the fields of information, psychology, and culture to influence the enemy's decision-making, attitude, and behavior, and its basic principle is to understand the enemy's way of thinking and behavioral habits by studying his culture, beliefs, values, etc., so as to design and implement various information and psychological means to achieve the goal of interfering, interfering, and destroying the enemy's strategic objectives. Cognitive domain operations usually include information operations, psychological operations, cultural operations, electronic operations, network attack and defense, and artificial intelligence operations. Cognitive domain warfare is a new type of combat mode that affects the enemy's consciousness, cognition, and behavior, so as to achieve the goal of controlling the enemy's actions and achieving victory in the war. As a special form and mode of warfare, cognitive domain warfare is also different from physical domain and information domain warfare in terms of its combat objects, objectives, contents, means, and main manifestations, and has its own characteristics.

**2.3 The Essential Attributes of Cognitive Domain Warfare**

As a form of warfare, cognitive domain warfare is still a continuation of politics in nature, and it is a form of warfare in which war behavior penetrates into the cognitive field. In essence, cognitive domain warfare is to take the human brain as the main combat space, take people's will, beliefs, thinking, and psychology as the combat objects, focus on attacking, weakening, and disintegrating the enemy's will to war, and take human psychological weaknesses such as fear, anxiety, and suspicion as the breakthrough point, and focus on relying on soft killing methods to create an atmosphere of insecurity, uncertainty, and distrust within the enemy, increase its internal friction and decision-making doubts, and carry out offensive and defensive confrontation in the cognitive domain by maintaining one's own cognitive superiority and attacking the enemy's cognitive disadvantage, so as to achieve " Win without a fight". Cognitive domain warfare takes attacking the heart and will as the basic combat purpose, and has the characteristics of "imposing the will on the opponent"[1].

**3 The Main Characteristics of Cognitive Domain Operations**

The characteristics of cognitive domain operations can be considered mainly from the perspectives of operational objectives, combat space, combat forces, and combat targets.

**3.1 The Purpose of the Operation is Pure and Direct, and the Means of Communication are Integrated with Man and Machine**

Cognitive domain operations are designed to occupy the dominant position in the cognitive domain, influence the enemy's decision-making and behavior, and achieve maximum combat effectiveness at the lowest cost. As Clausewitz mentioned in On War, "War is an act of violence that compels the enemy to submit to our will". Since cognitive domain warfare is not a hard kill of a living force, but a soft kill of an invisible target, it can not only "force the enemy to obey our will," but also objectively enable the enemy to destroy himself from within, make him powerless to resist, divide and disintegrate, and finally achieve the strategic goal of "total victory" of surrendering the army without a fight.

**3.2 The Combat Space is All-Dimensional and All-Domain, and the Forms and Means are Flexible and Diverse**

Since information is not limited by operational dimensions and domains, it can exist and be used in various operational dimensions and domains, so that cognitive domain operations present a basic combat situation in all dimensions and domains. The cognitive domain has a wide battlefield space, which is mainly reflected in people's spiritual, psychological, thinking and other cognitive activities, and its combat targets are mainly the leaders and dignitaries of the hostile countries, major members of the army, social elites, and the general public. The forms of cognitive domain warfare are also flexible and diverse, including but not limited to political and diplomatic pressure, economic blockade and sanctions, cultural infiltration and erosion, etc. The means of cognitive domain warfare are even more ever-changing, mainly to shake the enemy's beliefs, disintegrate the enemy's will, influence and change the opponent's decision-making, and then cause the enemy's social chaos, decision-making mistakes, morale scattered, and even subversion of its state power.

**3.3 The Combat Force is Diverse and Complex, and the Target of the Audience is Accurately Attacked**

The main body of cognitive domain warfare is people. As the most active factor in war, people, especially the cognition of the top decision-makers, embody the overall will of the war, directly influence the overall situation of the war, and determine the outcome of the war. The cognition of heads of state and army generals is the key offensive target of cognitive domain operations. Popular will, social foundation, and international public opinion are usually the basis for operations in the cognitive domain, and are the key forces driving the course and direction of warfare. Cognitive domain warfare mixes conventional and unconventional, blurs the boundaries of the field of warfare, and aims to cognitively induce and strike at information receivers, bypassing the traditional battlefield and reaching the weakest link - people, so that tactical actions can achieve strategic goals, fundamentally change the battlefield environment, and change the outcome of war.

**3.4 The Differences in Combat Objects are Scattered, and Emerging Technologies are Infiltrated and Integrated**

At present, with the rapid development of high and new technologies such as big data, artificial intelligence, and cloud computing, the acquisition of open-source information is more convenient and efficient, and cognitive domain operations are increasingly characterized by fast start-up, low cost, and high efficiency. In addition, with the quiet development of emerging technologies such as neuroscience and brain science, it can be inferred that cognitive warfare weapons will become more and more abundant and widely used in future warfare [2]. It is necessary to keep up with the development of the times, lay out the design in advance, vigorously develop cutting-edge science and technology oriented to seize and control cognitive advantages, and promote the updating of the concept and means of cognitive domain operations, so as to seize the initiative in future wars.

**4 Suggestions on Promoting Cognitive Domain Warfare**

Generally speaking, cognitive domain warfare is to interfere with or mislead the cognitive process of the enemy's personnel to understand objective things, so as to grasp the dominance of the entire battlefield situation and psychological trends, and achieve the effect of attacking the heart and conquering the enemy without a fight. Based on this, it is possible to shape the situation through public opinion propaganda, interfere with decision-making with the help of media information, and strengthen deterrence in the face of war effort, so as to form the mainstream of society that is beneficial to oneself and play a miraculous effect of comprehensive checks and balances in wartime.

**4.1 Shaping the Situation Through Public Opinion Propaganda**

Before the war starts, cognition comes first. Before a war is launched, it is necessary to aim at winning the superiority of public opinion, carry out cognitive planning in advance, and strive for the broadest domestic and international support. To a large extent, the focus of cognitive warfare launched before war is to create a mainstream opinion of society through news and public opinion, and to carry out comprehensive social mobilization for preparing for war, waging war, and winning war, so as to effectively guide the public to support the government's decision-making and win the political support of the international community. During the period of preparation for war, it is necessary to focus on the strategic layout in advance and the shaping of public opinion, actively publicize where the country's advantages and justice lie in accordance with the needs of the state and the government, and thoroughly expose and criticize the enemy's sinister intentions and weak nature, so as to form a kind of mainstream social opinion that a righteous war must be won and that the enemy will dare to win a war, and to create a good cognitive situation for deterring the opponent and winning support. In addition, cognitive domain warfare needs to take the initiative to create topics, try to define and justify war, and do a good job in the narrative of "legitimate defense", the definition of "forced legality", and the interpretation of "last resort", so that the defense of the right to justice in war has become the mainstream opinion in society.

**4.2 Interference with Decision-Making with the Help of Media Information**

Through data manipulation, current restriction and deletion, robot forwarding, etc., the information flow of social media can be effectively controlled, and public opinion hotspots can be formed in a short period of time, focusing on social consensus, and promoting the formation of "information waterfalls", so that the public can be swayed by mainstream social public opinion, and then their cognition can be solidified. Through the method of public figures such as online influencers and top Internet celebrities, carefully packaged information is put on social media platforms to attract the attention of target audiences, improve the visibility and reach rate of self-interested information [3], and guide and shape the formation of qualitative cognition of the public. The use of artificial intelligence technology to carry out saturation and precise cognitive attacks on specific audiences, the use of deepfake technology to interfere with the enemy's decision-making cognition, and the use of brain-computer interface, neuroscience and other technologies to directly act on combat personnel will become an important means to influence social cognition and dominate the trend of public opinion, so as to achieve combat objectives more directly and efficiently.

**4.3 Strengthen Deterrence by Closely Following War Action**

When carrying out cognitive-domain operations, it is necessary to conduct war deterrence action on the basis of them, fully release information on war deterrence action, and demonstrate to the enemy by various means their comprehensive strength, war potential, equipment performance, and soldiers and civilians will, so as to form a powerful deterrent and containment effect on the enemy's society. When the battlefield situation changes, it is necessary to have the courage to break through the stereotype, design the goals and tasks of cognitive attack in advance, combine the favorable situation on the battlefield, and use the powerful deterrent effect of war action to promote the cognitive upheaval of the target audience[4]. In the process of operations, it is all the more necessary to seamlessly embed cognitive domain operations into "hard destruction", comprehensively integrate the operational effectiveness of war to strengthen the "soft kill" effects such as cognitive deterrence, cognitive interference, and cognitive destruction[5] , promote radical changes in the psychological cognition of the enemy and the public, strengthen their fear of war, fear of war, and anti-war sentiment, and then use the extension effect of combat effectiveness to induce them in a timely manner, so as to promote a series of adverse chain reactions within their society, so as to soften their will to resist and combat confidence.

**5 Conclusion**

At the present stage, cognitive domain warfare has become the main battlefield for infiltrating the ideologies of other countries, and it is also an important method in modern warfare. In order to win future wars, it is necessary to closely follow the development trend of warfare, vigorously study the winning mechanism of cognitive domain operations, and use theoretical innovation to lead the innovation of combat methods and seek superiority and opportunities, so as to enhance the combat effectiveness of cognitive domain operations.

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