**Winning in the invisible new hybrid warfare: cognitive warfare**

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　　In recent years, there have been more and more studies on cognitive warfare, and there are different views on cognitive warfare. Some people believe that cognitive warfare is a new form of contemporary warfare, different from the propaganda warfare and psychological warfare in the general sense of the past; some people believe that cognitive warfare is aimed at attacking, weakening and disintegrating the war will of the enemy individuals or groups, and compared with some past practices, it is "changing soup but not medicine"; others believe that cognitive warfare is to attack people's will, spirit, psychology, etc., through the actions in the physical domain, the use of the information domain, and the attack and defense in the cognitive domain, constantly destroy the enemy's cognitive foundation and achieve the strategic goal of attacking the heart and mind. These views are reasonable, but they are also contradictory, making it difficult for people to truly grasp the basic connotation of cognitive warfare. To this end, the author attempts to analyze the basic connotation of cognitive warfare from the perspective of cognition and cognitive warfare concepts, combined with the development and evolution of cognitive warfare.

**Cognition originates from psychology but is different from psychology**

　　The popularity of cognitive concepts has a lot to do with the development of cognitive psychology in the United States and the West. In the mid-1950s, cognitive psychology emerged in the United States and the West, forming a new trend of psychological thought and research field and becoming a major direction of psychological research in the United States and the West in the 1970s. In the field of psychology, cognition is the psychological behavior or process of acquiring knowledge, including perception, intuition and reasoning; it also refers to the knowledge generated by such behavior or process. Compared with behaviorism, which has dominated American psychology for 40 years, in terms of the research object of psychology, behaviorism advocates the study of external, observable behavior without considering internal psychological processes, while cognitive psychology focuses on the study of internal psychological processes.

　　Cognition originally belongs to the category of psychology, but with the popularity of cognitive psychology, the word cognition has become a popular term in the academic field of the United States and the West and has gradually entered various fields such as society, politics and military. It has even replaced the word psychology, which seems to have a more empty meaning, to a certain extent and become a popular term. Cognitive psychology is also known as information processing psychology, which studies the process of information processing by the human brain. Therefore, with the development of the US military's information warfare, the concept of cognition has naturally entered its theoretical system, forming the understanding of the cognitive dimension of the information environment, defining the cognitive dimension as transmission, reception and response or acting on the minds of information personnel, specifically including individual or group information processing, perception, judgment and decision-making. The US military's information warfare believes that these elements are influenced by factors including individual and cultural beliefs, norms, weaknesses, motivations, emotions, experiences, morality, education, mental health, identity and ideology. As a result, the meaning of cognition has been generalized again and further spread into its entire military theoretical system.

**All wars involve the influence and manipulation of cognition**

　　Cognitive warfare is a new term, but according to the Oxford English Dictionary, the word cognition first appeared in 1447, and it has existed in the West for more than 500 years. In a literal sense, cognitive warfare should be a war against the opponent's knowledge learning process or the knowledge acquired through the learning process. In this way, cognitive warfare is not a new thing, and similar practices have existed since ancient times. Chinese and foreign scholars often mention that when studying cognitive warfare, Sun Tzu's Art of War has long had a discussion on cognitive influence and shaping - "Warfare is the art of deception. Therefore, when you are capable, pretend to be incapable; when you are ready, pretend not to be ready; when you are near, pretend to be far away; when you are far away, pretend to be near. Lure them with profit, take them when they are in chaos, prepare for them when they are strong, avoid them when they are strong, frustrate them when they are angry, make them arrogant when they are humble, tire them when they are idle, and separate them when they are close. Attack them when they are unprepared and surprise them. This is the victory of military strategists, which cannot be announced in advance." The victory of military strategists mentioned by Sun Tzu is to influence the enemy's judgment and decision-making in various ways, which is completely the influence and shaping of the enemy's cognitive process.

　　In the West, there are Clausewitz and John Boyd who proposed the "OODA" theory in the past, and their war theories all contain content on influencing and shaping the enemy's cognition. Even in the animal world, disguise can be used to influence the opponent's judgment and decision-making. Human warfare at any stage and in any form is even more full of influencing and manipulating the enemy's cognition. For a long time, the US military has defined psychological warfare as "a planned action to convey selected information and signs to foreign audiences in a way that is conducive to the implementation of the implementer's goals, so as to influence their emotions, motivations, objective reasoning, and ultimately affect the behavior of foreign governments, organizations, groups, and individuals." The influence on "emotions, motivations, and objective reasoning" is difficult to separate from cognition. The US military's military deception "is carried out to deliberately mislead decision-makers of hostile military, paramilitary, or violent extremist organizations, so as to cause them to take specific actions (or inaction) that are conducive to the completion of friendly missions." The nature of misleading enemy decision-making is more characterized by cognitive influence and manipulation.

**War on cognitive processes and abilities**

　　At present, it seems that the term cognitive warfare was proposed by General David Goldfein, then Chief of Staff of the US Air Force, in 2017. In a speech, he mentioned that the development of war is "transitioning from a war of attrition to a cognitive war". In August of the same year, Lieutenant General Vincent Stewart, then Director of the US Defense Intelligence Agency, shared his views at the 2017 Global Conference on the Intelligence Information System of the Department of Defense, saying that modern warfare is a cognitive war. Cognitive warfare has gradually entered people's field of vision since then. In June 2021, NATO held its first cognitive warfare seminar in France, officially launching the research and exploration of cognitive warfare.

　　What exactly is cognitive warfare? Neither Goldfein nor Stewart clearly defined it. In his speech, Stewart proposed that today's battlefields are not always physical, and wars are often fought in a non-purely kinetic way, and success depends on good reasoning and judgment. Stewart believes that this simply means knowing what to do and when to do it. If information is not controlled or the decision cycle is disrupted, or cognitive ability is reduced, you cannot win or fight effectively. Stewart claims that winning information in the so-called decision space before or during the conflict is the characteristic of fifth-generation warfare, that is, warfare against information. From his point of view, cognitive warfare seems to be information warfare in the decision space. The NATO seminar summary defines cognitive warfare as an unconventional form of warfare that uses network tools to negatively affect the enemy's cognitive processes, exploit psychological biases or reflexive thinking, induce distorted thinking, influence decisions and hinder behavior at the individual and collective levels. Here, the change in cognitive processes and the impact on thinking and decision-making are also emphasized.

**The upgrade of information warfare constitutes cognitive warfare**

　　Cognitive warfare is inseparable from the reliance on information. Cognition is a learning process, that is, the process of acquiring and processing information to form cognition. Cognitive warfare is not simply to directly affect the opponent's cognitive results, but to shape the opponent's cognition through the injection of information. Without information, there is no cognition, so cognitive warfare must also be an information war. Conversely, information warfare also involves cognitive warfare. The definition of information warfare of the US military is very clear. It refers to the integration and use of various information-related capabilities during military operations, in coordination with other combat lines, while protecting oneself, influencing, disrupting, damaging or seizing the decision-making of opponents and potential opponents. It can be seen from this that the purpose of information warfare is not just to transmit and control information, but its ultimate goal is to act on the opponent's cognition and then influence decision-making.

　　So, since both cognitive warfare and information warfare involve information and cognition, what is the difference between the two? If we construct the war form in three dimensions of physics, information and cognition, we can find that human war has always been composed of these three dimensions, but early wars were more focused on achieving war goals from the physical dimension, and more reflected the characteristics of physical damage and physical annihilation; with the development of modern information communication technology and its application in the military field, the role of various information-related capabilities has become increasingly prominent, information confrontation and information control have become the main characteristics of war, the information dimension of war has emerged, and information warfare has come into being; in recent years, with the integration of the Internet, mobile computing and social networking sites, everyone has become a source of communication and everyone has been turned into an information weapon. The manipulation of public discourse has reached machine speed. In addition, the further development of brain science and artificial intelligence technology, the direct weaponization of neuroscience and neurotechnology, has prompted military technology and theory to increasingly target the opponent's cognitive ability and cognitive process. Cognitive confrontation and control will gradually surpass information confrontation and control, becoming the new favorite of military science and art, and cognitive warfare is gradually emerging. From this point of view, whether cognitive warfare can be successfully transformed from information warfare should depend on whether cognitive technology (advanced media communication technology, brain science, artificial intelligence, neuroscience and neurotechnology, etc.) can be directly and more widely applied to cognitive influence and control, rather than simply repeating or revising the combat styles and means of psychological warfare and information warfare in the past. Cognitive warfare is an upgraded information warfare.

**A new type of hybrid warfare consisting of various capabilities**

　　Although cognitive warfare is aimed at cognitive processes and cognitive abilities, it still relies on the support of physical and informational capabilities. Coupled with the development and application of technologies in the fields of brain science, neuroscience, and artificial intelligence, cognitive warfare has become a new type of hybrid warfare consisting of many capabilities. Looking at the information warfare of the US military alone, it involves the support of more than a dozen information-related capabilities, such as psychological warfare, military deception, operational confidentiality, cyberspace warfare, and electromagnetic warfare. Cognitive warfare includes more power means such as economic warfare, cyber warfare, information warfare, and psychological warfare. Obviously, it involves more capability support and involves many fields and departments. Therefore, cognitive warfare is by no means something that can be accomplished by any department or unit alone. It is an overall operational concept that requires overall planning and coordinated implementation at the national and military levels.

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