Analysis of the Hotspots and Future Prospects of US Military Strategy Research in China

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Abstract: The United States is recognized as the country with the first military strength in the world. The trend of its military strategy has been deeply influencing the world military reform. In recent years, the research work of domestic scholars on the US military strategy has an important reference significance for the development of our military strategy. And using econometric analysis software to analyze the scientific knowledge map of literature in the research field has gradually become an important method to explore the research focus and development context in this field. This paper is mainly based on the literature related to the research of American military strategy by domestic scholars in recent years, and uses Citespace bibliometric analysis tool to analyze the knowledge map. Through the analysis of the number of documents published, main co authors and cooperative networks, research hotspots and frontiers, keyword time distribution and emergence, etc.

1. Introduction

As the only "superpower" in the world, the United States is also second to none in military strength. The development of the US military strategy has also undergone many major changes since World War II in order to adapt to the new world pattern. In May 2021, the US Department of Defense announced the defense budget for fiscal year 2022, totaling 715 billion US dollars. This is the first defense budget released by Biden since he took office, an increase of $11 billion over the previous fiscal year. Compared with the past few years, a remarkable feature of the US defense budget in fiscal year 2022 is that while significantly reducing the military equipment procurement expenditure, it has increased the investment in the development of new technology weapons, especially artificial intelligence and autonomous weapon systems. This reflects a new trend in the adjustment of the military strategy of the US military under the situation of competition among major powers.[1]

2. Data source

The keywords of this search are "US military", "US military strategy" and "US military operations". The search time range is from May 2012 to May 2022, and the search time is September 30, 2022. To ensure the authority of the research, only journals from SCI, EI, Peking University Core, and CSSCI are selected. It contains some articles with large deviation from the meaning of the search

words and news reports, which will be further removed manually. The number of documents that were finally used as data sources after screening was 302.

3. Analysis on the number of documents issued

Based on the statistics of the year when domestic scholars published relevant literature on US military strategy, we can analyze the importance of US military strategy research in each period as a whole. It can be seen from Figure 1 that domestic scholars' research on the US military strategy has maintained a high level and does not show an upward trend. 2014, 2019 and 2021 are key periods for research. In these years, the number of research papers presented a turning point of rising. It can be considered that the military strategy of the U.S. military has been adjusted to a certain extent in these years, which accordingly led domestic scholars to carry out active research on this issue, causing a wave of research fever.
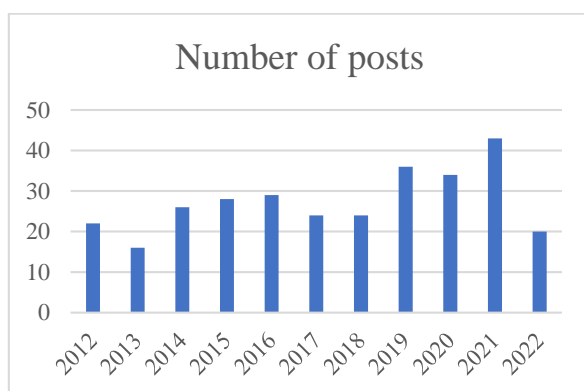

Figure 1: Number of Documents Issued

4. Research hotspot and frontier analysis

4.1. Keyword analysis

Each keyword will be presented in the form of a node. The size of the node represents that the higher the frequency of keywords, the higher the relative importance. Import the retrieved literature into citespace, select "Keyword" as the option, select "3" as the time slice, and generate a keyword co-occurrence map as shown in Figure 2.
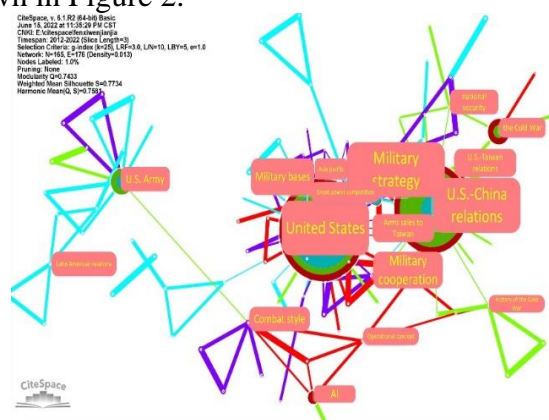

Figure 2: Keyword co-occurrence map

As shown in the figure, there are 165 nodes, 176 connections and a node density of 0.013. The top 10 keywords are: China US relations, the United States, the US military, military strategy, the cold

war, the US military, big country competition, artificial intelligence, combat concept, and combat style. Other keywords with high frequency include: military base, military cooperation, national security, Ministry of Defense, Biden government, regional refusal, Indo Pacific strategy, mosaic war, etc.

For keywords, the intermediary center value is calculated. Generally, keywords with an intermediary center value greater than 0.1 are more important. The calculation results show that the median values of the two keywords "Sino US relations" and "the United States" are 0.2 and 0.23 respectively. It is in the center of the key side and is most closely related to other keywords. According to the key words, they are mainly divided into the following four categories:

The first category is related to China US strategic competition. In recent years, research on the relevant fields of "China US relations" has been described as explosive growth. With the continuous improvement of China's international status, China and the United States have conducted in-depth cooperation and extensive competition in many fields. In particular, the Trump government's series of "US first" policies, as well as the conflicts and contradictions between the two countries on finance, have made bilateral relations a hot issue in this field.

The second category is related to the geostrategic environment. Geopolitical game has always been a hot research topic in the world. The Asia Pacific, India Pacific, the Middle East and the Korean Peninsula are also hot spots in the world. The study of US military strategy in these areas plays an extremely important role in our country's better understanding of US strategic trends and military intentions.

The third category is related to the military strategic frontier. The development and replacement of the US military's operational theory cannot be separated from the development and innovation of cutting-edge science and technology. In recent years, the application of cutting-edge science and technology, such as artificial intelligence, information technology, hypersonic weapons, air defense and antimissile, to military research has also emerged in an endless stream. Keeping a close eye on the forefront of the times is conducive to better grasp the changes in the form of war, timely adjust the strategic direction, and better win the future war.

The fourth category is related to multi-dimensional strategic support. The reason why the US military has global combat capability is closely related to its strong battlefield delivery capability and battlefield support capability.[2] In recent years, the research on "military bases", "military needs"has provided reference and development ideas for our military to improve the level of battlefield logistics support, which has supported the construction of our military battlefield support capability.

4.2. Keyword clustering analysis

Cluster analysis of the analyzed keywords can better reflect the research situation in this field. According to "Keywords" and Log Likelihood Rate algorithm, cluster the keywords of related literature to obtain the keyword cluster analysis spectrum, as shown in Figure X. The modular value (Q value) of clustering is 0.7433. Generally, $Q > 0.3$ means significant clustering structure. The average contour value of clustering (Silhouette), that is, the S value is 0.7734. It is generally believed that $S > 0.7$ means that the clustering result is convincing. Therefore, it can be proved that keyword clustering analysis is reasonable.

Figure 3: Literature cluster analysis atlas

There are 56 categories of results in the cluster, shown as Figure 3, of which 11 categories including at least 3 keywords in each cluster are respectively the United States, U.S.-China relations, AI, the U.S Army, US diplomacy, military alliance, Latin America relations, East Asia, capacity building, operational data, and information advantage.

According to the appeal clustering results, the following conclusions can be drawn:

First, the US national policy and Sino US relations are the main research topics. From the quantity of clustering results, the two clusters of "America" and "China US relations" cover a total of 50 keywords, accounting for 30.3% of all keywords. The research time covers all the time periods throughout the whole literature collection. In particular, there was an outbreak period in 2018-2019. In recent years, with the change of the US policy towards China and the deepening of the Sino US strategic game, the issues of mutual concern have become increasingly prominent.[3] China and the United States have launched a multifaceted competition in finance, trade and international order. The United States is worried that its influence and hegemony in the Asia Pacific region and the world will be challenged by China. This concern has begun to take shape during the Obama administration. After Trump took office, it has intensified significantly. Since Biden took charge of the United States government, the tough policy of dialogue has become more and more intense. It has made a big deal in economy and trade, people to people and cultural exchanges, cross-strait relations, etc., and has taken a series of new policy measures to strengthen checks and balances with China. And this kind of competition is impossible to eliminate and solve for a long time. If China wants to continue to develop, it must face these difficulties and properly deal with them. Therefore, this field will continue to maintain a high research enthusiasm in the future.

Second, the research on military strategic tactics is the key research direction. "Know yourself and know your enemy, and you will never be defeated in a hundred battles." The Chinese people have attached importance to the study of the adversary's operational thinking and theory since ancient times. On the one hand, it is better to understand the opponent's operational trend, and more importantly, it is to enrich our military operational concept by learning from the opponent's good operational theory. Since the beginning of the 21st century, the US military has successively put forward such operational theories as "ground air integration", "air space integration", "multi domain warfare", "mosaic warfare", and "cyber space warfare", which has strongly promoted the transformation of the form of war to a new direction.[4] In order to adapt to the future war pattern, our army must deeply study the latest operational theory of the US military and improve our strategic capability. In particular, the research on operational theory driven by new technology must be paid enough attention. From the current research situation, the research of clustering categories such as "artificial intelligence" and "information superiority" has shown a high development trend. Among them, "information superiority", "information support", "intelligence", "hypersonic missiles", and "combat data" are all clustering categories that have emerged in the past three years. It shows that these fields have become

hot topics in recent years and will remain for a long time.

Third, the development and operational application of weapons and equipment are the focus of future research. The development of military forces is not only the development at the strategic level, but also the development at the tactical level and weapons and equipment level.[5] In the process of cluster analysis, it was found that there were 20 clusters in recent three years. Among them, the design of weapons and equipment development and tactical application includes: # 16 "regional rejection", # 23 "weapons and equipment", # 28 "carrier based aviation", # 31 "mission planning", # 32 "information support", # 41 "hypersonic missiles", # 49, etc., which deeply reflect the development direction of future war forms. How to integrate and use different systems of weapons and equipment, how to integrate various dispersed elements into a whole, and how to better play the compatibility between combatants and weapons preparation. It will be a very hot issue in the future.

5. Time distribution and emergence analysis

From the analysis of the key words time map, it can be concluded that the "Sino US relationship" has been throughout the research in the past decade. Whether from the time distribution or from the cluster category distribution is the core of the research.

Combined with the time distribution and bursts words, it can be analyzed. In 2012, the research on US military strategy mainly focused on "China US relations" and "military strategy", but mainly focused on the competition among major countries in the context of global military strategy. The number of studies increased significantly between 2012 and 2017. In 2015, with the introduction of a series of policies by the Obama administration of the United States and the introduction of China's national strategies such as the "the Belt and Road initiative", the term "Obama" appeared, and its related policy research quickly became a research hotspot. In 2018, with the inauguration of President Trump of the United States, he strongly advocated the strategy of "giving priority to the United States", as well as the frictions between China and the United States in economic, trade, diplomacy and other fields. "China US relations" have shown explosive growth again and again. From the perspective of emergent value, the emergent value of "China US relations" in 2018 was as high as 3.32, which shows that the research on "China US relations" has grown significantly during this period. The research focus after 2018 is more inclined to high-tech fields such as "artificial intelligence", which is also consistent with the development direction of modern warfare, shown as Table 1

Table 1: Distribution of Bursts words in Recent Ten Years

Keywords	Year	Strength	Begin	end	Time-line
Military strategy	2012	2.63	2012	2014	
Defense	2012	2.87	2012	2014	
Obama	2012	1.52	2015	2017	
U.S.-China Relations	2012	3.32	2018	2020	
Cold War	2012	2.15	2018	2020	
Operational Concepts	2012	1.88	2018	2022	
Artificial Intelligence	2012	1.88	2018	2022	
National Security	2012	1.62	2018	2020	
Indo-Pacific Strategy	2012	1.58	2018	2020	
Great Power Competition	2012	1.56	2018	2022	
Regional Denial	2012	1.42	2018	2020	

Throughout the last 10 years, the research on the US military strategy can take 2018 as the dividing point, which can be divided into two major research stages: first, the research before 2018 focused on the US military strategic policy, and its research object was guided by several local wars launched

by the US military, highlighting the impact and enlightenment of the US military's first operation idea and war concept on our military strategy. The research content is more reflected in the macro level, analyzing the trend of future war and strategic development from a theoretical perspective, and providing thinking and reference for the construction and development of our military; The second is the research period of China US relations from 2018 to now. This period is characterized by taking China as the main body, reviewing the changes of the US military strategy from the perspective of the needs of China's national defense and military construction, and highlighting the strategic needs of our military. At the same time, it is more straightforward to face the contradiction between China and the United States, especially for the political sensitive issues such as, "Indo Pacific strategy", and "big country competition". The dividing line between these two stages has been fully verified in the analysis of bursts words.

6. Conclusion

From the perspective of the time of document issuance, the number of research documents on US military strategy presented a stable trend of high number of documents, which has always been the key content of military strategy research.

From the perspective of keyword positioning, the research focus is closely related to the current hot issues, but the study of "China US relations" is indeed throughout. At the same time, research on the impact of emerging technologies on military strategy has become a trend in recent years. However, on the whole, the breadth of US military strategy research is good, but the depth of research needs to be further improved.

On the basis of comprehensive analysis, the research in the field of US military strategy will show the following three trends: First, focus on the trend of future war to improve strategic decision-making ability. The reason why the US military is invincible in the world is that, in addition to its powerful weapons and equipment, its advanced operational theory is also the key to victory. In order to build a world-class military, our army must also make innovations and breakthroughs in operational theory. This requires researchers to face the future, not just review the past. Looking back on the past can provide us with reference, but facing the future can enable us to achieve transcendence. For the military strategy research of the US military and foreign forces, we should analyze their future development direction, so as to defeat the enemy. The second is to grasp the frontier of high-tech and expand the ability of strategic checks and balances. Modern war has long been a multi-dimensional, multi-dimensional and multi-dimensional joint operation of "land, sea, air, space and electricity". The form of war is often in the form of "asymmetry". With more advanced high-tech, it can bring not only economic benefits, but also more likely to achieve leapfrog development at the strategic level. Military strategy research must not ignore the impact of high-tech frontiers on the operational mode. It is necessary to dig deep into the value and significance behind technology. Expanding new battlespace and operational fields will help our army seize strategic highlands faster and achieve leapfrog development. Third, grasp the talent training ideas to enhance the strategic planning ability. No matter how the form of war develops, people will always be the most critical factor in deciding the outcome of war. In the process of studying the military strategy of the U.S. military, we should attach importance to the methods and ideas of personnel training of the U.S. military. The military personnel training should pay more attention to the combination of theory and practice. In the process of studying the foreign military personnel training methods, we should improve and optimize them according to the actual situation of our country. On the other hand, it is also necessary to deeply study the weaknesses of foreign military personnel training and formulate targeted countermeasures, so that there will be better response measures in the event of war in the future.

References

[1] Zhang Yeliang. New Trends of US Military Strategy from the US Defense Budget in Fiscal Year 2022 [J]. World Knowledge, 2021 (16): 31-33

[2] Li Daguang. The United States Launches the "Third Offset Strategy" to Maintain Military Advantage [J]. National Defense Science, Technology and Industry, 2016 (07): 61-62

[3] Xu Jia, Zhang Heng. Changes in the Government's Cognition in the New American National Military Strategy [J]. Modern Military, 2016 (01): 49-52

[4] Shi Bin. The Ideological Roots of America's National Security Strategy [J]. International Political Studies, 2021, 42 (01): 11-27+5

[5] Chen Jimin. Comments on the New American National Security Strategy Report [J]. International Research Reference, 2018 (04): 1-8+32