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On the Soft Power of Sci-tech Culture and Paths to Improve It

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Abstract

As the deepening of economic globalization continuously strengthening the development of sci-tech globalization, international competition gradually evolves into the competition between sci-tech, while, the competition of the soft power of culture also turns into the competition of the soft power of sci-tech culture. There are still a lot of problems existing in the development of sci-tech culture. The basic paths of promoting soft power of sci-tech culture are : to formulate an effective sci-tech system, to devote major efforts to developing sci-tech; to enhance the whole level of the power of sci-tech in China; based on traditional culture, to promote the fusion between traditional culture and scientific culture, thus to establish a new cultural system leading by scientific culture; taking the scientific and cultural diffusion as the breakthrough, to strengthen the popularization of science, and to put forth effort to enhance the quality of the whole nationals on sci-tech.

Key words: Soft power of sci-tech culture; Path to improve it

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According to the view of Joseph Nye, economy, sci-tech, and military affairs belong to the category of “hard power”, while “soft power” includes culture, values, social systems, ideologies and so on. His partition between hard power and soft power make technology and culture belong to different fields, resulting in the illusion

of antagonism between technology and culture. However, during the developmental history of human civilization, sci-tech always contains rich cultural connotations, the simple sci-tech excluding culture does not exist. Culture is a dynamic organism which needs constant critique, explanation, and updating. Sci-tech has been brought into the dynamic organisms of cultural development since the date of its birth, and as the rapid development of modern sci-tech practice, has developed a unique scientific and cultural system.

1. SCI-TECH CULTURE AND THE SOFT POWER OF SCI-TECH CULTURE

Culture is the spiritual accumulation and the crystallization of wisdom in the production of human life in the long-term social practice, while sci-tech culture refers to a special cultural type formed in the developmental process of sci-tech, and also the important part of human cultural organisms. The first people who regard sci-tech as a kind of cultural phenomenon and do research on it are Bacon and Campanula. They described “the sci-tech island” and “the sci-tech city” in their works “*The New Atlantic Island*” and “*The Sun City*”, and paid more attention to the cultural type and value of sci-tech. Admittedly, there were sci-tech in ancient time, the early peoples of the world more or less developed their own scientific ideas and technological capabilities in the practice of understanding and changing nature. Egypt, India, Babylon, and China known as “four countries with ancient civilizations”, is because these countries created a world-class scientific and technological civilization at that time. But strictly speaking, sci-tech culture is the product of practice and development of scientific and technological revolution. Sci-tech culture which has developed an independent cultural system is mainly because of the birth of modern science and the advanced development of modern sci-tech. With the constant establishment of new ideas, new

inventions, new material technologies and new disciplines, and with an unprecedented power, they are impacting and changing the way of producing and living of ancient people, resulting in the changes in people's world outlook, values and was of thinking.

The connotation of sci-tech culture: as culture has a broad and narrow sense, has its own. Broadly speaking, sci-tech culture refers to the way in which people apply the available sci-tech into changing and adapting to nature and society, and the achievement; while narrowly speaking, sci-tech culture emphasizes on the fields of spirit and ideology. The development of sci-tech culture is not a monolithic block, and moves forward in isolation, but in a very strong seepage force and universality, blends into all areas of social life and the other cultures in society through various means and forms, and becomes the common carrier and bridge of world's nations and regional cultures.

Seen from the specific content, sci-tech culture includes sci-tech knowledge, sci-tech thought, sci-tech systems, sci-tech morals, sci-tech spirits, and so on. As the hard core of sci-tech culture, sci-tech culture is the systematic summary on the practical experience of sci-tech theory and technology. The update of scientific knowledge each time provides a new theory and new ways for human to understand and change the world, and improves their ability to understand and change the world. Sci-tech thought refers to values contained in sci-tech culture, and is a valuable spiritual wealth of human beings. The values like reason, regulation, justice, tolerance, critique, creativity, efficiency, collaboration, and so on, are the basic factors which promote the revolution of values and norms of conduct in the process of national industrialization and modernization. Sci-tech systems, including sci-tech organization and management systems, sci-tech training systems, sci-tech achievements' identity and protection systems, international sci-tech exchanges and cooperation systems, and so on, refer to the norms and regulation in the field of sci-tech, taking the role of guidance and regulation to sci-tech culture. Sci-tech morals are regarded as the moral norms in science and technology, and the sci-tech workers' value pursuits and conscientious self-regulation to the perfect of sci-tech. Sci-tech spirits which are looked as the soul of sci-tech culture, are the core ideology and ethos refined from the development of science and technology, leading the progress on sci-tech culture and sci-tech undertakings.

As the important component of cultural organisms, sci-tech culture shows a structure of crisis-cross and complexity, so that they not only have a rich connotation in content, but gradually form the references from the macro to the micro. Seen from the deep structure, sci-tech culture could be classified into spiritual level, institutional level and implemental levels. Sci-tech culture in the spiritual level refers to the culture of ideas and values,

mainly embodies in the reform of people's spiritual world and ideological field produced in the development of science and technology, and is the underlying power and value orientation to scientific and technological development. "In our modern world, there is no second power which can match with the power of the scientific thought. It is seen as the culmination and perfection of all human activities, the last chapter of human being, and the most important theme in philosophy."(-1985, p.263) Sci-tech culture in systematic level is a system of regulation formed in the long-term development of it. Currently, it has formed a relatively complete regulation system which consists of the code of ethics, laws and regulations, policy and regulations, organizational norms, and so on. Sci-tech culture in implemental level has the closest relationship with human production and living, which embodies in a series of material success of "artificial nature" created in the process of advanced science and technology, including various tools, equipment, technological products, artificial materials, and so on.

Soft power of sci-tech culture: the soft power is a kind of non-mandatory charisma which has the power of "defeat the enemy without a fight". The soft power of culture is the important support of one country's soft power. Oconar, the North American eco-socialism scientist, reconstructed the productive and production relations of capitalism from the cultural dimension, and then put forward the notion of the productive and production relations of culture. Science and technology is primary productive forces. Science and technology culture which is shaped in the process of science and technology practice should be the most productive culture, and, therefore, the most competitive soft power. The implication of Science and technology Culture' soft power lies on two aspects: one is Science and technology culture offers intellectual support to the economic and social development. The progress of human civilization is, to some extent, a technology development history. The appearance of each kind of new ideas, invention will influence the way human beings lives and produces. This function is striking nowadays with the rapid development of science and technology. The other one is science and technology culture supports the economic and social development spiritually. The empirical spirit, rational spirit, and the spirit of skepticism and criticism spirit together with the derivative independence, freedom, tolerance, justice and respect and so on not only refer to the encouragement towards the development of science and technology, but also refer to the conception and spiritual sentiment that modern people should posse, meanwhile, they also enhance the social climate and create a good culture atmosphere for improving national quality.

Science and technology imposes explicit characteristics in the process of the interactive development with other

cultures in society and the process of self-socialization and making a technological society. Universality is the most significant characteristic of science and technology. Science and technology culture is a culture with truth properties, and penetrates in each subject and social life extensively. As tools and guidelines of dealing with the relationships between nature and human beings, science and technology culture can be generally accepted and mastered by all mankind. Since modern time's science and technology has spread and developed extensively which changed the slow evolution of different countries, regions and nationalities in the human culture history and became cultural wealth shared by all human beings. The second significant factor of science and technology is foundation. Science and technology is primary productive forces and the important impetus of pushing society forward. In the development and evolution of society, all areas of social life are marked with the stigma, "wherever, whenever, whatever".

Science and technology culture is a relatively independent social sub-culture system, meanwhile, takes the form of "baseband" to participate in all the social cultures based on modern civilization, and becomes a common carrier of many cultures and the bridge to ease the communication among all mankind. The third one is its dynamic factor. Science and technology always innovates and develops in the basis of abandoning the disadvantages while absorbing the advantages in the past. The continuous development and innovation of science and technology will inevitably lead to the development and innovation of its culture.

2. THE VALUE AND SIGNIFICANCE OF THE SOFT POWER OF SCI-TECH CULTURE

In modern society, the development of economy and science and technology has stepped into "wide science" and high technology age. In the process of the science and technology revolution carried by human civilization, science and technology are combined tighter with each other, and science, technology, economy and society have been highly collaborated. Cross-disciplinary, cross-sectional subjects have appeared, blurring the boundaries of natural sciences, humanities and social sciences are increasingly. As what Marx had predicted, "natural science will contain science about human beings just like science of human beings contains natural science, and this will be a subject of science." (Marx, 1957). With the deepening of economic globalization, technological globalization are also expanding, international competition is turning into the science and technology competition continuously, while the contest of cultural soft power, is essentially the soft power of sci-tech culture contest.

Science and technology is not only a great

productivity, but also the spirit of the weapon of promoting the emancipation of mind. Man is the fundamental element of the various production elements, and science and technology change people's ideas through scientific knowledge. By using scientific, rational way of thinking science and technology continue to develop new instruments of labor, labor materials and labor organizational management to achieve effectiveness. Thus, science and technology becomes the first productive promoted by the contemporary recent science and technology evolution. For any nation-state, the more science and technology developed, the higher the scientific quality of the people is, the more powerful integrated national strength becomes, the more advantage in the wave of global competition it owns. Technological culture, as a soft power, embodies in its subtle forces as the complex cultural patterns of knowledge, ideas, methods and spirit. As Klein praised the "this achievement in the ideological field, when it runs to the importance, courage and magnificent, is far more significant than the conquest of the ocean feat." (Klein, 1979)

Under the current situation, enhancing the soft power of sci-tech culture is not only the inevitable choice to develop our overall national strength and international competitiveness, but also one of the themes of our modernization which include economic, political, cultural, social and ecological development. The modernizing process in most countries all over the world benefits from the guiding and supporting function of sci-tech culture. Modernized society should be a society in which science and technology is highly developed and sci-tech spirit is widely carried forward. The optimization of the economic structure, the transformation of the pattern of economic development, and the advance of economic idea rely on the material base created by sci-tech activities, and more on the strength of intellectual and spiritual support provided by smart power which contains sci-tech. Moreover, the sci-tech culture itself contains important dimension of human nature, which is concentrated demonstrated by the connection between scientific knowledge and human needs, the agreement of people's interests and objectives, and the consistent value pursuit of people. Contemporary sci-tech culture presents human characteristics that are considering man as the subject and the purpose. It puts the value and demand of man in the first place, and respect their rights of individual. This contributes great to the improvement of our political civilization- People oriented, power for People. Sci-tech culture is highest achievement of human culture, representing the most advanced culture. "It is not only the foundation of communication among cultures of different types, different modes, but also the foundation of the innovation, modernization, globalization and advance of various cultures." (YANG, 2007)

The modernization of China is actually a process of absorbing sci-tech culture based on the traditional culture.

Sci-tech culture plays a key role in the transformation of traditional culture to modernization. Man is the main body of social construction, and the all-round improvement of man's quality is the core force of social construction. As the develop of sci-tech culture, social production and social life are influenced more and more profoundly and more and more widely by it, and human nature also is expanded and shaped to be more and more rich and comprehensive. Sci-tech culture not only has significant contribution to economic development, cultural innovation, political change, but also to the change of social system and the mechanism of management and operation in which the function of sci-tech culture is clearly proved by the improvement of man's quality and development of man's overall parts. Nowadays, the awareness of ecological protection in sci-tech development is strengthening. As the developing and using of new energy and materials which are without pollution and have high utilization, and the application of genetic engineering and microbial engineering, industrial production is turning in the direction of high efficiency, energy conserving and no pollution, hence, it will promote socialist ecological development.

3. THE EFFICIENT WAY TO IMPROVE THE SOFT POWER OF SCI-TECH CULTURE

The fast development of the science technology makes the sci-tech culture more important in the international competition. The major task to improve the soft power of sci-tech culture is to enhance the sci-tech culture construction, in order to improve the soft power of sci-tech culture. As we know, the formation and modernization of sci-tech culture are all date from the Western; "Needham Puzzle" is exposing the defect and shortage of the China modern process. So far, our sci-tech culture is facing with many problems, such as the global sci-tech culture is low, sci-tech culture and traditional culture are hard to get together, the popularity rate of the sci-tech culture is low, global science quality of citizens is sick, so we should discuss the problem above, seek the efficient way to improve our country's soft power of sci-tech culture.

Path one: Commit efficient science development institution, deeply develop the science technology, and improve the global level of the power of science technology. Economy is the base of culture, the revolution of science technology is the direct incitation of bloom development of sci-tech culture, improve the soft power of sci-tech culture must depend on the strong physical economic basement and advance science technology. "Once technology is need in society, this need will be more efficient to push the science than ten universities." (Marx, 1972). Nowadays, the fast development of our country's economy lead us famous result, our GDP

ranks the second. However, the fact we can't deny is our average GDP and rich level is fall less than the Western countries, the relative slow of sci-tech ability and self innovation barriers the development and innovation of sci-tech culture. So, we have to develop the economy firmly, commit efficient science development institution, learn the foreign advanced science technology, meanwhile, attach much importance to the folder of sci-tech person, respect science, encourage innovation, improve the self sci-technology ability and innovation ability, commit a stable economic basement for sci-tech culture' enter and development in China, supply continuous incitation. The development of the soft power of sci-tech culture is just a empty slogan without the base of global improvement of economy and sci-tech power.

Path two: We should based on traditional culture, promote the integration of science and technology culture, and establish the scientific culture as the leading new culture system. Although China has thousands of years of history and we are so proud of being dubbed "profound", at the same time we also has "Emphasizing on practical, lighting theory; Emphasizing personnel, lighting nature; Emphasizing re-experience, lighting innovation" and other features so that scientific innovation and development in China did not develop well, which means the modern scientific revolution did not happen in China. Moreover as the exotic culture, the localization of China's science and technology also face the emotion resistance of internal culture, making the process of modernization in China years of half-hearted and slumbering. "From the interior of our culture, it is difficult for us to jump out of the internal feelings and experience of traditional culture to accept the utilitarian science and culture."(CHEN, 2003). However, we must clearly recognize that our traditional culture can not be motioned to cultural modernization if we cannot absorb and integrate scientific and culture. Chinese traditional culture has a wide accommodation and on this point it is viable to make our traditional culture absorb the science and culture so as to transform itself. But at present, China's scientific and cultural concept reestablish has not complete and the spirit of science and technology has not yet deeply rooted in people's mind. To make the science spirit truly rooted, we must set up a new science-driven system so that the scientific sprit and our traditional humanistic spirit can learn from each other and bring out the best in each other. Only by contributing to the integration of scientific culture and humanistic culture, we could embark on a path of both-revival of scientific humanism and humane scientism and keep the right of speak in global competition and become invincible.

Path three: take propagating of sci-tech culture as an important breach; strengthen the popularizing of sci-tech knowledge to improve our people's quality. The so-called sci- tech cultural quality refers to "the ability to know about sci-tech knowledge; grasp basic scientific methods; build scientific mind; advocate scientific spirit, and the

ability to use all these things to deal with practical issues and take part in public affairs.”(-2006). People’s sci-tech cultural quality embodies the soft power of sci-tech culture, thus is the lifeblood of a country’s modernization. Prosperous people make a prosperous country, while, strong people also bring a strong country. We have a large population, while, if we can improve the whole sci-tech cultural quality of our people and transform the burden of population into the advantage in talents, we’ll obtain endless creativity and high competence. Since the reform and opening-up policy, with the spreading of sci-tech culture, our nationals sci-tech cultural quality has been significantly improved compared with the past, but overall, there is still a big gap between the developed countries. Majority of our citizens are in lack of basic scientific knowledge, spirits and methods, and superstition is still prevalent in cities as well as in the vast rural areas. Such situation has hindered the modernizing process in china and is becoming a bottleneck which constraint the development of our economy and society. To enhance the soft power of sci-tech culture, we should formulate an effective dissemination mechanism which is government-led, all walks jointed, and multi-media collaborated to

popularize sci-tech culture in the whole society and bring it to the masses so as to implement the transformation of sci-tech culture as elite culture to popular culture.

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