

A Summary of the Construction of Science Popularization Bases in China

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ABSTRACT

As the main medium and foundation of science popularization, science popularization base is the core of science popularization. In 1999, in order to promote the development of social science popularization, the China Association for science and technology began to establish a national science popularization education base. This measure has truly mobilized the enthusiasm of social science popularization work, promoted the normalization of science popularization work and improved the public's science popularization literacy. In order to meet the stable development of China's science popularization and summarize the history, function and current situation of China's science popularization work, this paper summarizes China's science popularization bases from four aspects: the types and modes, current situation and limitations of science popularization bases.

Keywords: *Popularization of Science Innovative Mode, Overview*

1. INTRODUCTION

In September 2020, the general secretary once again stressed at the Symposium of scientists that "curiosity is human nature. The guidance and cultivation of scientific interest should start with dolls, so that they can understand more scientific knowledge and master scientific methods, so as to form a large number of young people with scientific potential". These important discussions are of great significance to promote the progress and development of China's science popularization in the new era.

In June 2021, the State Council issued the outline of the national action plan for scientific quality for 2021-2035, proposing 2025 and 2035 goals, which aims to improve the proportion of Chinese citizens with scientific quality, realize people's all-round development, improve the degree of social civilization, and provide basic support for building a modern socialist power in an all-round way. It can be seen that the popularization of science and technology is of fundamental significance to China's scientific and technological innovation and development and the construction of a modern power. The law of the people's Republic of China on the popularization of science and technology promulgated by the Chinese government in 2002 defines popular science as an activity in which the state and society popularize scientific and technological knowledge, advocate

scientific methods, disseminate scientific ideas and carry forward the scientific spirit in a way that is easy for the people to understand, accept and participate. Science popularization is a science and technology communication activity that aims at improving the public's scientific and technological quality, takes the dissemination of scientific knowledge and technology promotion as the main content, and takes the popularization and diffusion of scientific spirit, scientific ideas and scientific methods as the core. It is carried out through various forms of media, including science and technology education in schools, science and technology publicity and technology promotion for the public. Popular science promotes people to master the necessary scientific knowledge and establish a scientific world outlook, outlook on life and values. It is an important component of science, technology, economic and social development, and a necessary way to achieve people's all-round development. Therefore, this paper will summarize the construction of science popularization bases in order to understand the limitations of science popularization bases in China and look forward to it.

2. TYPES AND MODELS OF POPULAR SCIENCE BASES

Science popularization base is a fixed place with a certain scale and specially used for science and

technology education, dissemination and popularization. At present, the national popular science education base is divided into museum base, youth activity place base, laboratory and research base of colleges and universities / scientific research institutes, national popular science education base of high-tech enterprises and nature reserve base. From the characteristics of the places and educational resources of science popularization bases, China's current science popularization bases can be divided into five types: first, science and technology, culture and education venues. Second, popular science bases in public places. Third, science popularization bases of scientific research institutes. Fourth, production facilities science popularization base. Fifth, other popular science bases.

With the rapid popularization of 5G mobile Internet and the development of integrated media technology, great changes are taking place in popular science methods. Digital popular science has developed rapidly and gradually replaced traditional popular science methods such as television, becoming the preferred mainstream popular science method for the people in the new era. Compared with traditional popular science methods, the advantages of digital popular science methods are obvious, mainly reflected in the modernity and progressiveness of its digital communication means, the liveliness and flexibility of popular science forms, and the richness and diversity of popular science contents, which have effectively promoted the dissemination and popularization of scientific information in the era of digital mobile Internet. In addition to digital science popularization, science popularization also shows innovative development in the fields of scientific knowledge, party and government knowledge, tourism and so on. This article focuses on the following popular science innovation modes.

2.1 Internet + Science Popularization

"Internet + Science Popularization" means to inject Internet thinking into traditional science popularization and form a new science popularization mode of "Internet + Science Popularization"[1]. Today, with the rapid development of the Internet in the new era, more new models based on "Internet + popular science" have emerged:

(1) "Short video + popular science". In March 2019, the Science Communication Bureau of the Chinese Academy of Sciences, the science popularization Department of the Chinese Association for science and technology, China Science Daily, China Science and Technology Museum and byteco jointly launched the Dou awareness program, that is, through the short video mode, to attract authoritative scientific research institutions, scientific researchers, college teachers and students and professional science popularization personnel to participate in the national science

popularization work, so as to spread scientific knowledge and scientific spirit in the mode of "short video + Science Popularization", Help promote the improvement of the scientific quality of the whole people[2].

(2) "Game + popular science". The concept of "popular science animation game" was put forward in the first China popular science animation game competition in 2008. Popular science games in a broad sense refer to games that have certain popular science functions and can spread scientific knowledge, scientific ideas, scientific methods and scientific spirit to users participating in games, such as some educational games with scientific knowledge connotation, serious games, green online games, etc. In a narrow sense, popular science games refer to games that take popular science as the purpose and the Internet as the data transmission medium, from which participating users can obtain scientific knowledge, scientific ideas, scientific methods and scientific spirit. For example, the digital science and Technology Museum in Fujian has specially built an experience hall for popular science games, and Netease games and the National Palace Museum have jointly created a green landscape interactive narrative hand tour "painting truth · wonderful pen thousand mountains". At present, the number of popular science games in China is small, the scope of influence is small, and the groups involved in the creation are relatively single. Only relevant institutions such as popular science and education are leading and promoting the development and promotion of popular science games in a narrow sense, and few online game enterprises actively participate in the development and production of popular science online games.

(3) "Live + popular science". Live popular science is to publicize popular science knowledge to the public in the form of live broadcast. On November 15, 2021, Changsha anti fraud center and Huya jointly launched the "star action anti fraud connection". Through the connection of star anti fraud police officer Zhai an, Huya anti fraud ambassadors Zhang Daxian, miss and frog popular anti fraud knowledge, it attracted many netizens to watch, and the highest popularity of the live broadcast exceeded 14 million. These typical cases show that the live broadcast mode, as an important media and means of popular science communication in the Internet era, has innovated the popular science communication mode of various societies, experts, scholars and other knowledge groups. Nowadays, "live broadcasting + popular science" has been innovatively applied in education, medical treatment, anti fraud, epidemic prevention and other fields, and has become an important model of popular science education.

2.2 Financial media + Science Popularization

In the era of media integration, we must timely master new thinking, control new carriers and use new methods. We should not only give full play to the authority and

influence of mainstream traditional media, but also make good use of the high traffic characteristics and advantages of new media and online red big V, based on the high point, find the landing point, tap the highlights and create a burning point. Through the comprehensive integration of online, offline and on-site, the effect of "small site, large communication" is realized, and the emergency science popularization is promoted from "large screen dominated and small screen supplemented" to "focusing on the mobile terminal and making full use of all media", so as to deepen the communication level and three-dimensional communication structure of high-quality science popularization of emergency management financing media.

2.3 App + Science Popularization

Nowadays, science popularization workers actively carry out theoretical and practical research on "app + Science Popularization". Yuan Jie [3] defined "app + Science Popularization" in the article "popular science app and science communication in the era of mobile Internet" as a third-party application developed mainly for mobile Internet users with the goal of disseminating scientific knowledge and improving users' scientific interest. Zhao Hui [4] defined "app + popular science" as a mobile application for the majority of mobile Internet users to popularize scientific and technological knowledge, advocate scientific methods, disseminate scientific ideas and promote scientific spirit, so as to improve users' scientific literacy.

In addition to the several typical popular science innovation modes such as "Internet + popular science", "media + popular science", "app+ popular science" introduced above, it also includes the innovation in other popular science fields and modes such as "tourism + popular science" of Beijing popular Science venue, "fire protection + popular science" of Fire Rescue Bureau and "agriculture + popular science" of agricultural popular science base.

3. CURRENT SITUATION AND LIMITATIONS OF POPULAR SCIENCE BASES

With the rapid development of China's economy, society, science and culture, popular science education base plays an increasingly important role in promoting the cause of popular science in China. At present, China's popular science education base has formed a complete and reasonable system: (1) more and more attention is paid to the cultivation of popular science talents; (2) The science popularization policy system is becoming more and more perfect[5]; (3) Popular science tools / models are becoming more and more advanced[6].

At present, China's public demand for science popularization is growing rapidly, while the traditional

science popularization venues and facilities such as science and technology museums, youth activity centers, professional science popularization museums and science popularization demonstration bases can no longer meet the needs of the public, which is the objective reason for the rapid development of various bases, especially grass-roots science popularization education bases.

There are still some deficiencies and problems in the work of popular science education base, which need to be improved and perfected. First, the diversity of science popularization funds is low. Although the investment of science popularization funds in China has reached a certain scale and level, the diversified investment mechanism of science popularization funds has not been really established. The important reason is that the channels for enterprises and society to invest in science popularization and public welfare undertakings are not smooth. Second, the innovation ability of science popularization is not strong. In the past five years, China has achieved fruitful practical results in promoting the pilot training of high-level science popularization talents. However, these achievements are still far from meeting the needs of national development strategy and the development of science popularization and industry. Third, there is a lack of science popularization professionals. There is a lack of discipline professionals, high-level commentators, design and development researchers, marketing personnel and other talents. At the same time, there are also problems such as difficulty in recruiting volunteers and aging personnel knowledge. These factors directly restrict the improvement of service ability and innovation ability of popular science education base. Fourth, there is an imbalance between "soft" and "hard" investment in science popularization funds. In the existing science popularization fund expenditure, the science popularization facility expenditure is relatively high; However, the capital expenditure for science popularization activities is relatively small and the proportion is low.

4. CONCLUSION

China needs to build a sound, high-quality and efficient science popularization system in order to step into the forefront of global innovative countries and realize the construction of a socialist modern power. First, the policy system. While emphasizing the goal of improving the quality of science popularization, it also needs the support of government policies to optimize the policies of science popularization personnel training, science popularization infrastructure, science popularization external environment, etc. Second, the talent system. High level science popularization talents are the "leading geese" in science popularization work and the most scarce resources in science popularization undertakings and industries. Colleges and universities should actively meet the needs of science popularization

talents, set up science popularization related professional courses, and cultivate and improve the science popularization related high-level talent system. Third, facility system. In the future, the construction of science popularization infrastructure in China should break the current pattern of decentralized development, turn to building a science popularization infrastructure system, and build a three-dimensional, fully integrated, fast response and more convenient modern public science popularization service system. Fourth, technical system. In the mobile Internet era, the content of digital popular science produced and disseminated by the Internet has been greatly enriched, and the Internet application tools and core technologies in the new era have been integrated to create a new model of "Internet + popular science". Fifth, innovation system. One is to break the traditional one-way indoctrination mode of popular science communication, change the role of the audience, and reconstruct the interaction of popular science subjects; Second, the joint science popularization bases, relying on the heterogeneous science popularization resources of each science popularization base, carry out targeted characteristic science popularization research. Sixth, the profit system. At present, China's science popularization bases mainly rely on government grants for funding, and their own profitability is poor. Each science popularization base cannot find a stable profit model. In order to get rid of strong dependence on national finance in the future, China's science popularization bases should find a suitable profit system based on their own science popularization fields.

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