



# **ANALYSIS OF THE PROBLEMS IN THE CULTIVATION AND USE OF YOUNG SCIENTIFIC AND TECHNOLOGICAL TALENTS IN THE NEW ERA**

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## **Abstract**

The cultivation and use of young scientific and technological talents need to improve the innovation environment and policy support. Through the analysis of the current situation of the cultivation and use of young scientific and technological talents, this paper probes into the causes of the problems existing in the cultivation and use of young scientific and technological talents in China, and puts forward some countermeasures and suggestions, such as innovating the training mode of talents, optimizing the environment for the growth of talents, carrying forward the spirit of scientists and improving the policy of talent allocation.

## **Keywords**

Young Scientific and Technological Talents, Cultivation, Usage

As a new force of scientific and technological innovation, young scientific and technological people shoulder the important task of improving the overall scientific and technological innovation ability of the country. General Secretary Xi Jinping emphasized "The policy focus of cultivating national strategic talents should be placed on young scientific and technological talents."<sup>[i]</sup>"It is necessary to train and use strategic scientists and support young scientific and technological talents to shoulder the heavy responsibilities."<sup>[ii]</sup>It is an important part of China's talent work in the new era to follow the law of talent growth, improve the training and use measures of young scientific and technological talents, and strengthen the training and use of young scientific and technological talents.

## **1. Problems existing in the training and use of young scientific and technological talents in the new era**

Young scientific and technological talents refer to those who have scientific knowledge, technology, and innovation ability, and have certain practical experience in the field of science and technology. Young scientific and technological talents are young workers with scientific research activities as the main form and play a vital role in scientific and technological innovation. At present, the total amount of talent resources in China has reached 220 million people, an increase of 100 million people over 2012. The training and use of young scientific and technological talents has made great progress, but there are still the following problems.

### **1.1 Lack of scientific research ability training**

First, although some colleges and universities provide a large number of experimental courses in the training of young scientific and technological talents, due to the backward experimental equipment in some colleges and universities, the maintenance is not timely, which can not meet the actual needs of the development of young scientific and technological talents. Second, some enterprises provide internship positions for personnel training, but these internship opportunities cannot effectively promote the development of young scientific and technological talents and cannot provide them with practical scientific research experience. Third, some young scientific and technological talents lack systematic skills training after employment and lack effective guidance in the development of research work, resulting in insufficient growth of their scientific research ability.

### ***1.2 Lack of atmosphere of technological innovation***

Some scientific research units do not pay attention to the improvement of incentive evaluation mechanism, so that some young scientific and technological talents dilute their pursuit of scientific and technological innovation, lose their desire for innovation, and cause weak scientific and technological innovation ability. The atmosphere of scientific and technological innovation of some scientific research teams is not strong enough, and they cannot actively seek breakthroughs in scientific and technological innovation. The team consciousness is not enough, which is not conducive to the improvement of scientific research ability of young scientific and technological talents.

### ***1.3 Lack of scientific research motivation***

The rapid development of social economy has brought about the diversification of culture, which has caused the values of contemporary young people to be multifaceted. What supports young scientific and technological talents to go on the road of scientific research is their enthusiasm for science and their love for scientific research. However, some young people lack scientific spirit, cannot adhere to the continuous exploration of scientific problems, and do not have good scientific literacy. It is difficult to grow into young scientists with innovative motivation and vitality.

### ***1.4 Significant regional distribution gap***

In recent years, the total number of scientific and technological talents in China has grown steadily, and the structure of talent team has been continuously optimized. However, the trend of unbalanced regional distribution of scientific and technological talents is highlighted. Scientific and technological talents are accelerating to gather in central cities in the east and a few central and western regions, and the brain drain in some underdeveloped areas in the northeast and west is increasing.<sup>[iii]</sup>

## **2. The causes of the problems in the training and use of young scientific and technological talents in the new era**

### ***2.1 Lack of opportunities for scientific research and innovation practice***

The cultivation of young scientific and technological talents requires a lot of manpower and material resources support and certain scientific research practice exercise. Due to the short working hours, young scientific and technological personnel generally lack scientific research experience. Although young talents have participated in relevant scientific research work under the guidance and assistance of instructors during the postgraduate period, the scientific research work is still in the adaptation period, lacking independent scientific thinking and experience in undertaking scientific research projects independently. In addition, some young scientific and technological talents are not clear about the positioning of scientific research frontier issues, can not effectively avoid the blindness of scientific research, and it is difficult to obtain funding for scientific research projects. The output of scientific research results is small and the level is low, which greatly reduces the confidence in scientific research and slows down the improvement of scientific research ability.

### ***2.2 Insufficient incentive evaluation mechanism***

At present, the incentive policy for young scientific and technological talents has been relatively sound, but the incentive mechanism is not scientific and reasonable enough. The unreasonable evaluation mechanism is mainly manifested in the unification of evaluation criteria, excessive emphasis on the number of papers, the level of scientific research projects, the number of scientific research funds obtained, and the lack of evaluation of substantive innovation achievements and social contributions. The homogeneity, utilitarianism and short-termization of evaluation indicators violate the laws of scientific research, affect the interest and attention of researchers in innovative research, fail to stimulate the enthusiasm and creativity of young researchers, and hinder the development of innovative ability of scientific research talents.

### ***2.3 Inadequate cultivation of scientific research values***

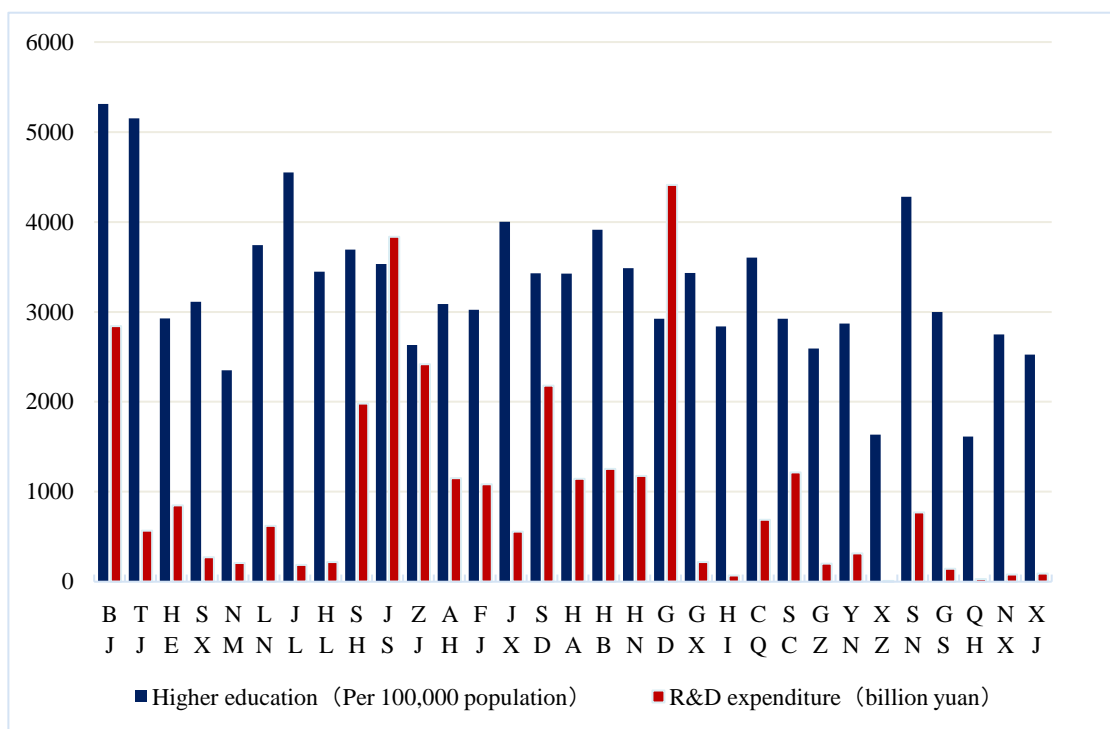
It is very important for the growth of young scientific and technological talents to establish correct scientific and technological innovation values. Scientific and technological innovation requires long-term persistence. Technological research is arduous and long, and it is not eager to achieve success, nor can it be achieved immediately. Studies have shown that the advantages of scientists rely not only on intelligence, but more importantly on concentration and diligence, through long-term exploration and the formation of an advantage in a certain field.<sup>[iv]</sup> Only by truly possessing the scientific spirit can we stimulate the endogenous motivation of courage and perseverance, and be willing to be lonely and persistent in scientific research. Young researchers must firmly establish the scientific and technological values of "innovating science and technology, serving the country and benefiting mankind" in order to engage in long-term and arduous scientific research and innovation work. The important role of science education in the cultivation of scientific and technological innovative talents is reflected

in the three levels of knowledge literacy, thinking ability and values. It is required to internalize the scientific concepts and scientific spirits such as the pursuit of truth, rational demonstration, pioneering and innovation into educational practice, so as to help learners establish scientific values, cultivate scientific spirit, develop scientific identity and lay a solid foundation for their growth.<sup>[v]</sup>At present, science education focuses more on knowledge literacy and thinking ability, and the cultivation of scientific and technological innovation values of young scientific and technological personnel is relatively insufficient, which is not conducive to the long-term development of young scientific and technological talents.

**2.4 Unbalanced distribution of science and education resources**

First of all, the current distribution of educational resources is concentrated in Beijing, Shanghai, Guangzhou and coastal cities, while the educational resources in the northwest region are relatively scarce. The uneven distribution of educational resources has limited the supply of training resources for young scientific and technological talents in backward areas. Secondly, the more developed the economy, the higher the level of higher education, the more the number of talents provided for the local, the greater the investment in scientific research funds. The differentiation of science and technology resources investment in various regions also affects the regional allocation of young scientific and technological talents to a certain extent, which in turn affects the coordinated development between regions. See Table 1 for details.

Table 1 The average number of students enrolled in higher education and research and experimental development (R & D ) funding per 100,000 population in each province in 2021.



Data sources:“China Statistical Yearbook 2022”and“China Science and Technology Statistical Yearbook 2022”.

Note : The number of students in higher education in 2021years includes graduate students, ordinary undergraduate students, vocational undergraduate students, adult undergraduate students, excluding network undergraduate students.

**3. Suggestions on the use of young scientific and technological talents training**

**3.1 Follow the law of talent growth, innovative talent training mode**

First, let young scientific and technological talents participate in research projects, dare to use talents, increase the opportunities for young people to undertake projects independently, equip mature researchers with guidance, and pay attention to cultivating teamwork ability. Second is to broaden the development channels, clarify the promotion standards, break the traditional model of seniority, mobilize the enthusiasm and initiative of scientific and technological talents, provide more space for innovative research, and achieve diversified development; Third is to build an exchange platform to further optimize the academic research environment, establish a youth academic committee, regularly organize youth academic exchange activities, give young scientific and technological talents the opportunity to show their talents and communicate, promote the exchange of scientific and technological talents, encourage young scientific and technological talents to participate in international academic exchanges and

cooperation projects, cultivate their international vision and academic exchange ability, and create a stronger academic atmosphere.

### ***3.2 Improve the talent incentive evaluation mechanism, optimize the talent growth environment***

First, it is necessary to stimulate and guide young talents to carry out career planning. On the basis of respecting the law of scientific research activities, taking innovative achievements as the main evaluation goal, society should guide young scientific and technological talents in different periods, different levels and different stages of development to display their achievements. Second, the assessment of scientific and technological talents should be diversified. The achievements of basic researchers are mainly reflected in the subject of the paper, while the scientific research achievements of applied researchers are mainly reflected in the actual effect of practical application. Therefore, according to the results of the assessment and evaluation, appropriate incentives are given to young scientific and technological personnel to stimulate employees' enthusiasm and enterprising consciousness for scientific research; Third is to increase the spiritual incentive for young scientific and technological talents. Society should honor the young scientific and technological talents who have achieved important scientific research and innovation achievements, give appropriate material incentives, encourage other scientific and technological workers to actively participate in cooperation and exchanges, create a scientific research ecology that pursues original achievements, and fully stimulate the potential and creativity of young scientific and technological talents.

### ***3.3 Carry forward the spirit of scientists and promote the growth of young scientific and technological talents***

Inheriting and carrying forward the spirit of scientists in the new era is particularly important for continuously stimulating the innovative vitality of young scientific and technological talents. By cultivating young scientific and technological talents, they should have the patriotic spirit of cherishing the motherland and serving the people, the innovative spirit of bravely climbing the peak and daring to be the first, the realistic spirit of pursuing truth and rigorous scholarship, the dedication spirit of indifferent to fame and wealth and devoting ourselves to research, the cooperative spirit of gathering wisdom and tackling key problems, and the educational spirit of being willing to be a ladder and rewarding later scholars, so as to promote the growth of young scientific and technological talents in the cultivation of scientists' spirit.

### ***3.4 Improve policy measures and optimize the regional allocation of talent resources***

A good social environment will affect the willingness of young scientific and technological talents to flow. First, each region should establish and improve the social security mechanism of talents in combination with the local actual situation, and introduce a series of preferential policies in the aspects of social insurance of young scientific and technological talents, children's schooling, and family members' migration, so as to solve the worries of cross-regional flow of talents. Second is to improve the policies and regulations of talent market management, build a comprehensive intelligent information platform for 'One Netcom Office', efficiently handle the approval procedures for the establishment of high-tech enterprises, and provide corresponding training and guidance. Third is to provide project topics and funds suitable for all kinds of young scientific and technological talents, giving researchers full autonomy, so that researchers are no longer subject to 'red tape' constraints. Through a strong talent flow policy, it will promote the continuous optimization of the allocation of talent resources between regions, so that young scientific and technological talents can play a greater role and promote coordinated development between regions.

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