

# Research on the Construction of Scientific Research Talents in Local Colleges and Universities

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## ABSTRACT

The construction of scientific research talents in local colleges and universities is of great significance to improving the scientific research capabilities of schools. This paper explores the importance of scientific research talents cultivation for local colleges and universities, and problems it encountered, etc. Thanks to case analysis and comparison between the development of colleges and universities, its development path is elaborated from two aspects: how to manage and serve the development of scientific research talents in schools and how to improve the development system and mechanism of scientific research talents in local universities. It is concluded that, on the one hand, the scientific research management concept, mode and system should be innovated in colleges and universities; on the other hand, the system and mechanism of scientific research personnel development should be perfected, so as to drive the construction and development of the scientific research personnel team in local colleges and universities and further improve the scientific research ability and school reputation.

*Keywords: colleges and universities, scientific research talents, team building*

## I. INTRODUCTION

Colleges and universities are not only the main force of teaching and educating people, but also the new force of scientific research. Due to the shortage of teachers and scientific research resources, local colleges and universities still have more or less "emphasis more on teaching than scientific research", "heavy teaching tasks, and insufficient investment in scientific research", and other phenomena, which are not conducive to the overall development of college teachers and the improvement of the school's scientific research capabilities. In the new historical period, to stimulate the innovation potential and creative vitality of scientific research talents by innovating the development system and mechanism of scientific research talents in local universities is not only the only way for the development of local colleges and universities and the construction of high-quality scientific research talents, but also an important way to carry out and implement the general secretary's thoughts on talent team building.

## II. THE IMPORTANCE OF SCIENTIFIC RESEARCH TALENTS TO THE DEVELOPMENT OF LOCAL COLLEGES AND UNIVERSITIES

The "advanced" characteristic of higher education is rooted in advanced learning, and exploring advanced learning is the main duty and task of colleges and

universities. The level of colleges and universities ultimately depends on the depth and breadth of exploring advanced knowledge, that is, the academic level. Scientific research and innovation have now become the core functions of colleges and universities, and colleges and universities have become an important part of the national innovation system in China. Human resources are the primary resource, and high-level scientific research personnel are the key factor in technological innovation. Without a first-class scientific research talent team, there can be no first-class scientific research, first-class disciplines and first-class colleges and universities. To improve the level of scientific research in colleges and universities and to ensure the sustainable development of scientific research in colleges and universities, the key lies in people, which is to build an echelon of outstanding talents that combines old, middle-aged and young people with a reasonable structure. Through the old to lead the new, the old to lead the youth, and teaching by personal example as well as verbal instruction, it can promote the long-term advantages and healthy development of human resources. The scientific research talent team is the most dynamic factor in the school's scientific research development, and it is also the key factor for the school's survival and development. A thousand of soldiers are easy to get, and a general is hard to find. Training high-level scientific research talents is the key to the school's scientific research development. For example, before the 20th century, Princeton University in the United States was just a

little-known second-rate school, but thanks to the joining of the famous scientist Einstein and excellent research in the "Manhattan Project", Princeton University has now become one of the top universities in the United States and the world. Therefore, an outstanding scientific research leader can complete a number of major projects, and can drive the development of a discipline or even a school. The construction of a scientific research talent team has significant practical significance for improving the school's scientific research capabilities, enhancing the school's core competitiveness and school running level, promoting the development of school work, and promoting local economic and social development.

### **III. PROBLEMS IN THE CONSTRUCTION OF SCIENTIFIC RESEARCH PERSONNEL IN LOCAL COLLEGES AND UNIVERSITIES**

#### *A. The positioning of colleges and universities is not scientific enough, and scientific research and talent team building are ignored*

Affected by the scientific research system of the former Soviet Union, before the reform and opening up, Chinese colleges and universities had always regarded teaching and training of talents as the central task. Scientific research had always been ignored by colleges and universities and the teachers. Therefore, for a long time, insufficient attention has been paid to the construction of scientific research institutions and scientific research personnel in colleges and universities. Although this kind of thinking has been greatly changed after the reform and opening up, due to the late start and low starting point of the construction of scientific research and scientific research personnel in local colleges and universities, the construction of scientific research institutions and scientific research personnel in local colleges and universities is relatively lagging behind.

#### *B. Teachers have heavy teaching tasks, and their research investment and team productivity are low*

Since 1999, China's colleges and universities have continued to expand their enrollment, but the number of teachers has not increased accordingly. This has led to a serious imbalance in the teacher-student ratio in colleges and universities. Teachers' teaching tasks have become more and more onerous. Teachers are weary of preparing lessons and classroom teaching, which greatly reduces the time and energy of participating in social practice, academic exchanges, and engaging in scientific research. Although some teachers have spontaneously carried out scientific research activities due to pressures such as promotion of professional titles and advanced academic qualifications, due to the lack of continuous scientific research investment and

scientific talent incentive mechanism, teachers' scientific research potential and innovation vitality have not been fully tapped and improved, which has severely restricted the construction of scientific research talents and the improvement of scientific research capacity of local colleges and universities.

#### *C. The scientific research management concept is backward, and the innovative potential and creative vitality of scientific research talents are insufficiently developed*

For a long time, the development of scientific research in China's colleges and universities has basically adopted "planned academic", and scientific research resources are more concentrated on government-led research projects, and other research fields have insufficient resource allocation and lack of development motivation. At the same time, because Chinese people pay too much attention to interpersonal relationships and the practical benefits of scientific research, the relative lack of innovative spirit and scientific spirit results in the relatively lack of scientific research utilitarianism. Due to the shortage of scientific research resources, it is more difficult for local colleges and universities to obtain approval for major key projects and produce high-level scientific research results. To some extent, the scientific research management work of some local colleges and universities also has the phenomenon of "hot topic opening and closing, cold research process".

#### *D. There is a relative lack of high-level scientific research talents, and many fields are in a "no core" state*

Local schools lack or do not have leading figures and high-level experts and scholars with significant national influence in various research fields. They can train a small number of high-level scientific research talents in a timely manner. Due to factors such as scientific research resources and school platforms, it is difficult for many schools to keep the cultivated scientific research talents. Therefore, it is difficult for local colleges and universities to occupy a place in various research fields. It is also difficult for local colleges and universities to obtain approval and undertake major basic research projects. The lack of funding for scientific research and the lack of high-level scientific research results have made it difficult for local colleges and universities to develop scientific research.

#### **IV. RESEARCH ON THE PATH OF SCIENTIFIC RESEARCH MANAGEMENT SERVING THE DEVELOPMENT OF SCIENTIFIC RESEARCH TALENTS**

##### *A. Innovating the concept of scientific research management in colleges and universities and injecting vitality into the construction of scientific research personnel*

The construction and sustainable development of scientific research personnel in colleges and universities is subject to the concept of scientific research management to a certain extent. Advanced scientific research management concepts can not only inject vitality into the construction of scientific research personnel, but also contribute to the sustainable development of scientific research personnel. To this end, scientific research management in colleges and universities should adhere to the following basic concepts: the first is the concept of "people-oriented". It is required that scientific research management should always mobilize the enthusiasm of scientific researchers, stimulate their scientific research potential, and promote the development of scientific research talents as the central task and important goal of scientific research management. The second is the concept of "comprehensiveness and coordination". It is required that scientific research management work should always take the promotion of scientific research talents in colleges and universities to achieve the overall development of teaching and research, mutual integration and coordination as the starting point, and guide scientific researchers and scientific research teams to correctly handle the relationship between scientific research and discipline construction, so as to promote the comprehensive and coordinated development of scientific research talents and teams. The third is the concept of "sustainable development". It is required that scientific research management should establish a long-term mechanism conducive to the construction of scientific research personnel to ensure the continuous and healthy development of scientific research personnel in colleges and universities.

##### *B. Innovating the scientific research management model of colleges and universities and creating conditions for the transformation of scientific research talents*

The scientific research management model is a key factor that affects and restricts the development and production capacity of the scientific research talent team in colleges and universities. There are two usual scientific research management models: one is the mutual promotion of scientific research and teaching, which emphasizes the integration of scientific research and teaching by scientific researchers, encourages

scientific research teams and researchers to transform scientific research results into teaching content, improves the level of teaching through scientific research, promotes the development of scientific research with teaching, and finally realizes the integration of scientific research and teaching. The second is the market-oriented management model, which emphasizes the production capacity conversion of scientific research results and uses market-oriented means to realize the organic combination of production, education and research. The above two management models are suitable for different development stages of scientific research talents. The first model is more suitable for the initial stage of the construction of scientific research talents, and the second model is more suitable for the booming period of the development of scientific research talents. At present, the scientific research management mode of colleges and universities is more towards the integrated development of industry-university research and development. To strengthen the application and organization of high-level scientific research projects, it is necessary to closely integrate the needs of the school, and focus on the establishment of national key projects and major horizontal topics, the management of the implementation process, and the promotion and application. Combining the discipline construction plan and the characteristics of each discipline, the strategy of categorized guidance and specialized services is adopted to promote the emergence of high-level project growth points quickly and more, and cultivate a number of research highlights with iconic display as soon as possible.

##### *C. Innovating the scientific research management system of colleges and universities and providing institutional guarantee for the construction of scientific research personnel*

Institutional innovation is not only the need for the development of scientific research management in colleges and universities, but also an important guarantee for the construction of high-level and high-quality scientific research personnel in colleges and universities. To establish a team of high-level and high-quality scientific research talents, scientific research management in colleges and universities should innovate and improve the scientific research management system from the following aspects. The first is to establish a scientific research management system mechanism and scientific research talent management mechanism. Colleges and universities should establish a top-down management system step by step to clarify the rights and responsibilities of each department. Among them, relevant departments of scientific research management, such as the school's science and technology department, secondary colleges, etc., must have clear responsibilities, orderly

management and control, and clearly defined powers and responsibilities. The Science and Technology Department is responsible for the evaluation, supervision and management of scientific research progress and scientific research goals. The unit of scientific research talents is responsible for related administrative affairs and business support. All departments must coordinate with each other, negotiate and resolve cross-cutting issues, and actively provide support and services for scientific research talents. The second is to create a reasonable investment mechanism for talents and funds. First, it is of great significance to innovate the institutional mechanism of human resources investment. It is a must to firmly establish the concept that talent investment is the first resource investment, and realize the transformation of talent from the concept of "cost" to the concept of "capital". The scientific research management of local colleges and universities should regard scientific research achievements and technical input as important elements for participating in the distribution of income. The distribution system should enable scientific research talents with outstanding contributions to increase their incomes by their own scientific research and management activities and fully mobilize the enthusiasm and creativity of scientific research personnel. Second, it is necessary to adapt to the direction of social development and adjust the funding for scientific and technological innovation research. The colleges and universities must pay attention to the investment in basic research in the investment of internal research and development funds, and at the same time increase the efforts to obtain more government investment in basic science and public welfare research. It is also a necessity to intensify cooperation on horizontal topics, and jointly conduct applied technology research with local enterprises and industry enterprises. In the use of funds, the human cost of the subject research should be included in the budget system, and part of the salaries and bonuses of the staff should be allowed to be spent in the project funds, so that the mobile researchers, postdoctoral, graduate students and other important scientific research forces can get reasonable remuneration from the subject research.

## **V. THE PATH OF THE DEVELOPMENT SYSTEM AND MECHANISM OF SCIENTIFIC RESEARCH TALENTS IN LOCAL COLLEGES AND UNIVERSITIES**

### *A. Enhancing the vitality of the employment mechanism and deepening the reform of the expert selection system*

In accordance with the requirements of building a team of high-quality scientific research talents, it is necessary to highlight the talent value of "talents

developing strategy" in work, and form a scientific mechanism for the selection and appointment of talents. The first is to clarify standards, improve methods, and make scientific evaluations. In order to comprehensively and accurately reflect the different criteria for the selection of various majors, it is necessary to establish a strict selection process, adhere to the daily performance appraisal and annual appraisal system of talent management, and evaluate expert talents objectively, accurately and fairly from the four aspects of moral quality, scientific research ability, work ability, work attitude, and work performance. The second is to expand channels, extensively select and evaluate each other. The evaluation of key scientific research personnel of the same major and the evaluation of middle-level cadres of the same major shall be the basis for selecting professional talents.

### *B. Strengthening support and cultivation and striving to build a high-level scientific research and innovation team*

The scientific research work of colleges and universities should focus on the four elements of scientific research work of "projects, results, talents, and bases". Relying on key disciplines and innovative teams, taking major scientific research projects as the traction, and achieving "marked results" as the goal, the schools should effectively establish a group of high-level scientific research teams with excellent structure, strong innovation capabilities and relatively concentrated scientific research directions. Through stable key support and construction, it should form a group of distinctive, influential and dynamic scientific research and innovation teams. It is necessary to promote the growth of young science and technology talents in colleges and universities, ensure the continuity and continuity of scientific research, and support young scholars who have made outstanding achievements in basic research to carry out innovative research. Through key support, it is also necessary to strive to cultivate a group of outstanding young academic leaders at the national and provincial levels, actively support the scientific research work of young teachers, and promote the all-round development of young teachers.

### *C. Introducing competition and selecting the best to promote excellent talents to stand out*

The selection adheres to the principle of openness, competition, and selection of the best. On the basis of fully learning from advanced experience and practices, efforts are made to optimize selection methods and methods to promote excellent talents to stand out. The first is to focus on the opinions of secondary colleges. Adhering to the principle of "who uses who is responsible", the secondary colleges will research and determine the job description, as well as the job

requirements such as age, education, major, experience, etc., to meet the actual needs of each unit and meet the needs of work tasks. The second is to focus on ability and quality. It requires paying attention to the assessment of actual ability, and making the assessment of well done well according to the characteristics of the job and the actual work. The third is to pay attention to the recognition of the masses. It is important to incorporate democratic evaluation into the comprehensive results, organize and carry out special evaluations of teacher ethics, and increase the weight of the organization and the public's evaluation. According to different types of scientific research activities, different platforms on which scientific research activities are carried out, and different groups engaged in scientific research activities, etc., it is necessary to actively explore the establishment of talent classification evaluation standards with clear orientation, reasonable classification, objective and fairness, and equal emphasis on incentives and constraints.

*D. Improving the personnel training system and promoting the rapid growth of high-quality scientific research personnel*

It is a must to adhere to the market-oriented reform and development direction, integrate existing training resources, fully tap the potential of existing resources, and continuously increase investment to cultivate high-level scientific research personnel, and improve the training conditions for high-level scientific research personnel. It is also a must to strive to expand the scale of training and promote scientific research personnel to grow and become talents, and constantly enrich and improve the knowledge level and comprehensive quality of scientific researchers. Meanwhile, it is very important to strengthen the research of talent team building, organize and convene scientific research talents work symposium, discuss the countermeasures, measures and methods of high-level scientific research talents training, summarize and promote the advanced experience of talent training in time, and stimulate the creativity of scientific research talents. It's the aim to strive to build a team of scientific research talents with good ideological quality, high level of scientific research, and strong sense of innovation, and promote the rapid growth of high-level scientific research talents in local colleges and universities.

*E. Strengthening the introduction of high-level scientific research talents and enhancing scientific research capabilities*

It is a necessity to attach great importance to the key role of academic leaders, especially scientific research leaders, in the development of scientific research. Local colleges and universities should vigorously introduce outstanding talents such as the "Overseas High-level

Talent Introduction Program" and "Changjiang Scholars". There should be multi-channels, multi-models, and ultra-conventional introduction of well-known Chinese and foreign scientific research leaders and authorities within the province. According to needs, it is necessary to formulate an annual introduction plan, improve the quality of talents introduced, and increase the intensity of introducing teachers with study and work experience in other schools and outstanding young doctors from famous universities and colleges. It should also establish and improve the training and use system for young backbone teachers and academic newcomers, help young backbone teachers to emerge as soon as possible, and improve their academic contribution to scientific research. What's more, it is of great significance to give priority to the publication of outstanding scientific research achievements made by young academic backbones, and implement low-level and high-employment and exceptional promotion for teachers with outstanding academic achievements.

## VI. CONCLUSION

Local colleges and universities must vigorously implement the strategy of "talents developing strategy", strengthen the construction of a team of high-level and high-quality scientific research talents, and strive to create an institutional environment that is conducive to the use of outstanding scientific research talents. The construction of high-level scientific research talents must develop in depth, continuously improve the selection system of scientific research talents, continuously strengthen the grasp of scientific research talents, and continuously increase the reform of the selection system of scientific research talents, so that the construction of scientific research talents in local universities can achieve positive results and further improve the school's scientific research level and school-running ability.

## References

- [1] Zheng Cunku, The Construction of a Contingent of Teachers Is the Core of Local Universities' Scientific Research [J]. Higher Agricultural Education, 2004,(12),12:24-26. (in Chinese)
- [2] Zhang Miao, Analysis on the Management Mechanism of Innovation Teams in Local Universities [J]. Education and Vocation, 2016, (7): 41-43. (in Chinese)
- [3] Hu Zhihui, On Improving the Research Ability of Local University Teachers [J]. Art and Literature for the Masses, 2019, (4): 176-177. (in Chinese)
- [4] Zhang Xueyan, Zhou Xiaohu, On the Cultivation of Scientific Research Talents in Universities from the Perspective of Cultural Innovation [J]. Finance and Accounting Monthly, 2020,(9): 104-108. (in Chinese)
- [5] Li Junfeng, Deepening the reform of evaluation mechanism of scientific and technological talents in Colleges and Universities [J]. China Higher Education, 2014 ,(18): 53 – 55. (in Chinese)
- [6] Wang Kai, Research on the construction of science and technology innovation team in local Universities [J]. Science and Technology of Chinese Universities, 2014,(7):28-29.(in Chinese)