

Research on the Leap-forward Development of Scientific Research in Private Colleges under the Change of National Science and Technology Policy

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Abstract: Because of the inherent special shortcomings of the private colleges in China, scientific research has always been the short-board of them. In recent years, the state issued the call of "mass entrepreneurship and innovation" and then made major adjustments in policies related to science and technology. The research holds that the recent changes in the relevant national science and technology policies are extremely beneficial to the scientific research work of the private colleges. The private colleges should seize this historical opportunity acutely, turn the orientation of scientific research work of colleges to applied research, strengthen the selection and appointment of applied teachers, pay attention to the transformation and application of practical achievements such as patents, promote the integration of colleges and enterprises.

Since its birth in the 1980s, private colleges and universities in China have made great achievements, especially in the field of teaching, the scale of students and the quality of teaching have made great progress. However, due to the inherent special shortcomings of themselves, scientific research has always been the short board of the private colleges. In recent years, the state issued the call of "mass entrepreneurship and innovation", and then made major adjustments in policies related to science and technology. The research holds that the recent changes in the relevant national science and technology policies are extremely beneficial to the scientific research work of the private colleges. Private colleges should seize this historic opportunity acutely and realize the leap-forward development of scientific research work.

1. Problems in Scientific Research in Private Colleges in China

At present, the scientific research of private colleges in China lags behind the overall level of private colleges. Compared with public colleges, there is a wide gap, which affects the improvement of teaching quality and sustainable development of colleges to a certain extent. Mainly in the following aspects.

1.1 Insufficient Understanding to the Importance of Scientific Research

Most private colleges in China do not fully understand the importance of scientific research, and

basically can not organize and promote scientific research in a targeted manner. After a certain stage of development, some of them have to carry out scientific research work in order to grant to Academic Degree Granting Right. They only positioned scientific research as the assistant position of teaching. It can be said that scientific research has to be completed for the purpose of teaching targets, so scientific research is often "marginalized", and even think that grasping scientific research will affect and impact teaching.

1.2 Structural defects in scientific research teams

Due to the unreasonable age structure and academic structure of teachers, it is difficult for most private colleges in China to form a more competitive research team. According to the survey and statistics, young teachers in them account for more than 60% of the total number of teachers, and most of the remaining part-time old professors in public colleges. Young teachers are too young, lack scientific research experience, vigorous and innovative, and lack the guidance of professional scientific research experts. Old professors are too old and lack innovative enthusiasm. Although they have rich experience, their energy is limited^[1]. The lack of leading figures in scientific research team makes it difficult to form excellent scientific research team and lose the development of scientific research work.

1.3 Serious shortage of investment in scientific research

Most private colleges in China have a single investment channel, mainly relying on a small amount of tuition revenue. Because the government does not attach enough importance to the scientific research of these private colleges, there is discrimination in the evaluation and approval of scientific research projects, funding and other aspects, which makes it difficult for these private colleges to get public financial scientific research funding from the government. This seriously restricts the normal development of scientific research in these private colleges, leading to the construction of scientific research conditions, academic exchanges, high-level scientific research achievements in these private colleges are at a low level. At the same time, this result in turn continues to hinder the improvement of scientific research competitiveness of these private colleges, thus forming a vicious circle.

According to the development trend of private colleges in recent years, while developing rapidly as a whole, they are facing more fierce competition and challenges. Scientific research plays an irreplaceable role in improving the quality of education, enhancing the comprehensive competitiveness and building a well-known brand in these private colleges. It will certainly become a necessary choice for private colleges to meet future competition and challenges.

2. With the adjustment of national science and technology related policies on the scientific research, private colleges in China are entering a period of historical opportunities.

In 2015, Premier Li Keqiang officially put forward in the government work report "promoting mass entrepreneurship and innovation". Subsequently, various Ministries and commissions actively followed up and launched a series of policy measures, which greatly stimulated the national entrepreneurship and innovation genes. It has injected new vitality into the work of scientific and technological innovation in Colleges and universities all over the country. Especially, it brings new development ideas to the scientific research of private colleges in China.

2.1 Opinions on Deepening the Reform of Title System greatly expands the diversity of talent selection in private colleges

In 2016, Opinions on Deepening the Reform of Title System is issued by the General Office of the Central Committee of the Communist Party of China^[3], which pointed out that the evaluation of titles in various units should reasonably set some conditions for papers and scientific research achievements, and that the titles series with strong practicality and operability should not be required for papers, instead of alternative forms of achievements, and should focus on the quality of research results, dilute the number of papers required, should highlight the level of performance evaluation and actual contribution, should increase the weights of evaluation indicators such as technological innovation, patents, technology promotion and standard-setting, should pay more attention to the investigation of economic and social benefits. This policy not only stimulates the diversification of scientific and technological personnel in academic research and applied research, but also opens a new window for the selection and appointment of scientific researchers in private colleges. These private colleges can select applied talents who are really suitable for the development of science and technology in private colleges, instead of following the old road of promoting scientific research in those public universities. They are too limited by academic indicators such as SCI papers and national projects, thus laying a solid policy foundation for the flexible selection of talents in private colleges.

2.2 Some Opinions on Strengthening the Transformation of Scientific and Technological Achievements in Colleges and Universities greatly enhance the enthusiasm of scientific research in private colleges

In 2016, the Ministry of Education and the Ministry of Science and Technology jointly issued "Some Opinions on Strengthening the Transformation of Scientific and Technological Achievements in Colleges and Universities", encouraging all the research institutions and institutions of higher learning to transfer scientific and technological achievements to enterprises or other organizations by means of transfer, licensing or pricing investment, and emphasizing that each scientific research unit decides to transfer its own scientific and technological achievements. Achievements, in principle, need not be examined and approved or filed; the income from transfer of achievements is entirely reserved to the units, mainly for rewarding scientific and technological personnel and carrying out scientific research and transformation of achievements; the proportion of shares or contributions obtained through transfer or permissible net income and investment in pricing should be no less than 50% for rewards, and the reward share of those who make major contributions to R&D and transformation of achievements should not be less than 50% of the total awards. This policy not only greatly encourages the transformation of scientific and technological achievements, but also opens up the policy space for scientific research to create social and economic benefits for private colleges and universities, and further expands the funding channels of private colleges and universities.

2.3 Measures for Linking up Personnel Management after Colleges and Universities Are Not Incorporated into the Establishment Management makes the personnel policies of private colleges and public universities finally stand on the same starting line.

In 2016, a spokesman for the Ministry of Human Resources and Social Affairs, said that he was studying and formulating a cohesion method for personnel management after universities were not included in the establishment management. More than 2.33 million editors and faculty nationwide were counted, and the compilation was withdrawn. In the future, a full-staff contract appointment system would be implemented. In the future, colleges and universities will enter the era of "not included in the establishment management", that is, to cancel the establishment of institutions, but to

retain the nature of institutions. The reason why we want to keep the nature of public institutions is mainly to consider the public welfare attributes of colleges and universities, which cannot be completely marketed, but also to be allocated by the financial balance. After the abolition of the establishment of public institutions, colleges and universities will implement the full-staff contract appointment system in the future. Under this policy condition, the personnel policies of private colleges and public universities will be on the same starting line for the first time, and "within the system" will become history, and the flow of talents will become more common. Fully utilizing the advantages of more flexible personnel policies of private colleges and universities will have a great attraction for outstanding scientific and technological talents.

3. Grasp the opportune time for the transformation of national science and technology policy and vigorously promote the leap-forward development of scientific research work in private colleges and Universities

Usually, even if the strength is comparable, it is almost impossible to overtake in a curve, and only changing lanes is the correct option.

3.1 The science and technology policy of private colleges should lay equal stress on applied basic research and applied research, with particular emphasis on supporting applied research.

Basic research has the advantages of long cycle, large investment, difficulty in risk control, applied Research has the advantages of small investment, quick effect and controllable risk. It is the best choice for private colleges to do scientific research. Applied basic research can publish high-level academic articles such as SCI, and can also be transformed into applied research in a relatively short time after the conditions are ripe. Applied research generally does not produce high-level academic articles, and its achievements are mainly in the form of patents. Once the patent achievements are transformed, they will probably produce greater economic benefits for the patent holders and their units. Once this mechanism is formed, it will change the income pattern of private colleges relying solely on tuition fees. Teaching and scientific research will truly become the wings of the birds and the wheels of the car of the school development.

1) The research emphasis of private colleges should be focused on the application research. Faced with the major needs of the country such as the reform of the economic supply side and the development of civil-military integration, and the major concerns of the economic and social development of the region, starting from the existing disciplines and professional foundations of private colleges, making a thorough study and demonstration of the key research fields and the research directions that may lead to minor breakthroughs in the near future, and urges the advance of the layout, so as to achieve the overall layout, highlight the key points and promote systematically. This breaks the traditional practice of mechanically measuring private colleges by their academic level, faculty strength, school-running scale and specialty settings. Instead, it establishes a development model that is really suitable for the scientific research of private colleges, thus highlighting the characteristics of private colleges, and realizing the differential development between private colleges and public universities.

2) Incorporate patents into the evaluation index of scientific and technological achievements of private colleges. Patents are the main form of applied research. Private colleges and universities should incorporate patents into the evaluation index of scientific and technological achievements, or improve the weight of patents in the evaluation of scientific and technological achievements. At the same time, we should pay more attention to the transformation and application of scientific and technological achievements, improve the management methods of transformation of scientific and technological achievements in colleges, and scientifically set up the distribution ratio between patent

holders and colleges, so as to effectively stimulate the motivation of scientific research personnel to promote their achievements and ensure the reasonable income of colleges.

3.2 Adjusting the policy of school-enterprise alliance to actively create conditions for entrepreneurship of School researchers

At present, private colleges generally attach importance to the joint development of colleges and enterprises. Colleges provide talent support for some enterprises and enterprises provide opportunities for student practice and employment. This kind of cooperation is primary. Colleges and enterprises are without organic integration. The reason why Alibaba has grown from a small enterprise to a giant enterprise with tens of billions of years in only 18 years is not how strong it is, but that there are tens of millions of fast-growing small enterprises on Taobao. In fact, private colleges are a very good platform with certain technological advantages and talent advantages. Making full use of the advantages of this platform will be a tremendous impetus to the development of colleges.

1) Strengthen the establishment of school-finance enterprises. On the basis of actively promoting the transformation of applied research achievements, the college has studied and formulated a new type of income and equity entry mechanism for the transformation of achievements in school-finance enterprises, which leaves room for the school to make profits from the development of these enterprises. One hundred and ten such colleges and financial enterprises, enterprises are stronger than colleges, not only bring economic benefits, but also provide more employment opportunities for students. At the same time, it also solves the problem that high-end talents cannot stay. Many personnel departments of private colleges have a paradox in introducing talents. They hope that talents can develop quickly and well, and fear that they can develop quickly and well. Because once they are well developed, they will be taken away by well-known public institutions. Once you have your own business, it will be much more difficult for others to dig it out.

2) We should improve the policy of supporting science and technology services, support the development and growth of school finance enterprises, further provide professional support for the achievement holders to start up enterprises, solve the problems of cumbersome entrepreneurship procedures and financing difficulties of outstanding science and technology achievements holders, at the same time, establish a mechanism for school finance enterprises to advance and retreat, and ensure the benefits of investment in school science and technology innovation.

3.3 Personnel policy of private colleges should lay equal stress on both academic and applied talents, especially on the selection and appointment of applied talents.

The personnel policy of colleges serves the objectives and tasks of colleges. Once the scientific research policy has changed dramatically, the personnel policy must follow closely. The personnel of private colleges should pay more attention to the selection of applied talents. Applied talents may not be PhD, Master, or even undergraduate. But as long as they have a strong sense of innovation and technology, colleges can provide them with a platform, basic living allowances and work basis, and support them to transform applied technology into economic benefits as soon as possible.

1) The private colleges should make full use of the outstanding advantages of talents and science and technology in local public universities, bring outstanding doctoral degree and even undergraduate graduates with strong innovative consciousness into the talent introduction channels of private universities, and support on-the-job study of higher-level degrees.

2) The personnel appraisal mechanism for such talents will give more prominence to economic and social benefits. Within the short and medium term (2-3 years), the policy mechanism of retention and support intensity is formulated by taking the equity income of such school-affiliated enterprises and the number of undergraduate employment as the evaluation indicators.

In a word, the next ten years will be an important strategic opportunity period for the development of private colleges. Private colleges must seize the opportunity of the great change of national science and technology policy, study and prove it carefully, find a way to truly suit their own scientific and technological development, and realize the leap-forward development of private colleges and universities.

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