Analysis of innovative measures to strengthen organized scientific research in institutions of higher learning

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Abstract. scientific research needs to mobilize multiple resources in an organized way and tackle key scientific problems in a guided way. At present, there exist a few deficiencies for most institutions of higher learning in such aspects as the coordination of various forces, integration of effective resources, improvement of scientific research paths, and feasible solutions in major scientific and technological problems, which affect the efficiency and quality of scientific research to a large extent. In order to promote the rapid and sound development of scientific research, we must explore a new mode of organized scientific research, establish a better scientific research management mode, and explore well-organized scientific research management methods, so that scientific research management can be carried out orderly and efficiently, and help promote the overall scientific research. Meanwhile, a favorable and positive scientific research environment will be created on basis of what are considered above.

Keywords: Organized research; Scientific research management; new pattern.

1   Introduction

China has entered the stage of high-quality development, and higher education should also explore high-quality development[1]. With the all-round deployment of China in key fields of science and technology, research institutes and colleges and universities at all levels have also been put into the main battlefield of science and technology, and colleges and universities are an important part of the national education system. While teaching, colleges and universities are also a platform for scientific research and innovation where many disciplines gather together. Because of this, colleges and universities can transform their own scientific research achievements and research methods into teaching content, so as to cultivate more talents to improve the overall innovation ability of colleges and universities, and enter a virtuous cycle of scientific research to training and scientific research. The scientific research management is an important joint for the escort, upward and downward, and incentive and constraint of scientific research in colleges and universities. The scientific research management department is also an important part of the institutional setting of colleges and universities[2]. In general, there are many categories of specialties in the same college, so the scientific research direc-

tions in colleges and universities are also different, which can be seen from the classification of scientific research projects in the same college and the research directions of laboratories at all levels. How to effectively manage many scientific research projects, real platforms at all levels and supporting funds for scientific research in colleges and universities is worth exploring and researching and practicing. The scientific research level of a university and the overall teaching quality are complementary. At present, there are many ways to measure the scientific research level of a university, but the most common and intuitive way is to measure the number, level and funding of scientific research projects at all levels[3]. Scientific research management needs an efficient management system and mechanism[4]. The scientific research management departments in Chinese universities are mostly management oriented, and then the status quo of management rather than service appears[5]. At the same time, due to the lack of full-time personnel, the division of labor of scientific research management departments may be unclear, affecting the overall efficiency of scientific research management[6]. The same university may undertake a variety of scientific research projects or research subjects of different directions, levels and funds[7]. How to organize scientific research personnel in different fields and research teams of different disciplines to concentrate on big things is worth exploring. Therefore, there need to be special scientific research management institutions and management personnel to explore the organized scientific research management mode, constantly enhance the scientific research management level of universities, improve the efficiency of scientific research management, make resources more effective for scientific research, and better coordinate various scientific research resources in universities to ensure the orderly development of scientific research activities, so as to improve the overall scientific research level of universities.

2   Analysis of the current situation of scientific research management in universities

At present, after the adjustment and reform of colleges and departments in Chinese universities, the basic teaching and scientific research system has formed the basic organizational structure from schools to departments and teaching and research sections. At the same time, high-tech development at all levels has set up scientific research platforms at all levels, including key laboratories, engineering centers and development centers at all levels. This has basically formed the internal scientific research system of universities today. Universities that can undertake scientific research tasks have set up special institutions or specialized management personnel for scientific research management, such as scientific research offices, scientific research institutes and scientific research secretaries of secondary colleges or laboratories. It can be seen that Chinese universities attach great importance to scientific research work. The scientific research management mechanism of Chinese universities is mostly based on top-down communication and bottom-up application. For example, the superior competent departments or scientific research management departments issue relevant notices, and the scientific research offices issue or forward relevant notices to secondary colleges, laboratories

and research centers according to the actual situation of the university. University teachers apply for projects or awards through the second-level units of universities and then apply to the scientific research office, and then recommend them by the university. At present, the existing scientific research management system and mechanism are becoming more and more mature, and they are also widely used in most Chinese universities.

Under normal conditions, the functional department of scientific research management in Chinese universities is the Scientific Research Office, whose main responsibility is to implement the national and provincial laws and regulations and policies related to science and technology work, to be responsible for the formulation of the scientific development plan and management documents of the school, the declaration, implementation, acceptance and fund management of various scientific research projects at all levels, and the declaration, construction, assessment and acceptance of various scientific research platforms. Management of various intellectual property rights, achievements and transformations, assessment of scientific research performance and application of various types of scientific research awards at all levels, organizing statistics, analysis and submission of scientific research information, and daily scientific research management.

3   Explore a new model of organized scientific research management

Organized scientific research is to guide researchers to change from solo fighting to organized team cooperation, which requires the research management department to explore the top-level system design, research mode, and form of results. The scientific research management department can formulate and introduce incentive measures or systems according to the actual situation, and guide or promote the scientific research workers to carry out scientific research activities with direction through the design of the top-level system. First, the goal orientation should be determined through the design of the top-level system, and researchers should be encouraged to combine their own research direction with the key demand areas to improve the overall level of scientific research. Second, the national strategic demand should be anchored, and multidisciplinary professionals should be integrated to form new views and new theories through the exchange and collision of professionals in different disciplines. Third, the research units should find their own positioning, and scientific research resources should be rationally mobilized or used to improve the scientific research competitiveness of scientific research units through organized collective attack.

3.1   We will strengthen the design of top-level systems

In the management of organized scientific research, we should take the initiative to explore new systems and models for scientific research management, and formulate new systems that can cover scientific research personnel, scientific research funds, pro-

ject organization, scientific research platform, achievement transformation and conditions guarantee. Focusing on strengthening planning and direction, strengthening overall construction, and strengthening system construction, we should explore organized scientific research, and make scientific research workers clear about their research directions through project guidance and guidance, policy resources guarantee, etc. By cultivating scientific research teams and other methods to bring together scientific research forces, we can promote individual research to converge into team achievements, and finally solve major problems in scientific research and development. We should organize strategically oriented systematic basic research, frontier-oriented exploratory basic research, and market-oriented applied basic research. Organized scientific research is oriented to serve national needs, and we should integrate forces to focus on key scientific and technological projects through targeted entrustment, open nomination, open selection, and other ways. The design category can be clearly defined in the project approval of scientific research projects, such as the major economic and social needs, key industries and key fields, concise scientific problems, carry out research on key technologies of common industry, release key research projects, focus on the essence of key public relations projects, highlight characteristics and innovation, clarify the technical route and expected results, integrate multidisciplinary talents to focus on public relations of key projects, and strive to achieve landmark results. Based on the needs of the development of national science and technology, cultivate key projects, focus on the overall, strategic and forward-looking major theoretical and practical problems in the high-quality development of economic society, and carry out decision-making consulting research. The research content should be realistic and targeted, and the research results should have high decision-making reference value.

3.2   Strengthen overall planning and coordination

The scientific research management department of universities should establish a modern management concept and establish a modern scientific research management process. Targeting the main direction and key technologies, concentrating scientific research forces, giving full play to organizational advantages, opening up various links, coordinating scientific research resources to focus on key problems and high-tech convergence. At the same time, exploring the integration of internal resources, establishing a shared scientific research platform, breaking scientific research barriers, reducing internal resource consumption, strengthening the overall integration of internal high-quality resources, establishing different forms of organized scientific research carriers through special plans or projects, forming research teams, attracting teachers to participate in interdisciplinary, joint research for major strategies, frontier issues and realistic problems, improving academic originality and collaboration ability, and creating a high level of academic team. Scientific research management is both management and service. Scientific research management workers are fundamentally the logistics support force of front-line scientific research personnel. Improving service awareness and changing the traditional management mode is conducive to stimulating the working enthusiasm of front-line scientific research personnel and improving the research efficiency of front-line scientific research personnel, so as to improve the management

efficiency of scientific research management departments and make the whole process of scientific research management enter a virtuous cycle working mode.

3.3   Optimize management process

Scientific research management is heavy, but also pay attention to details. How to make the heavy and complicated scientific research management process efficient is an urgent management issue. The work content of scientific research management is generally conveyed in the form of notice in the superior or subordinate departments. Ensuring the smooth notification channels of the upstream and downstream is the key to efficient management. In the process of issuing and conveying notices, it is common to miss the timeliness of notices due to too many forwarding links. How to avoid this situation needs the scientific research management department to actively explore. For example, the use of convenient communication software or platforms to make the notice quickly transferred to each staff member, or reducing the forwarding links to make the staff receive the latest information, which are good ways to smooth the upstream and downstream channels[8]. Nowadays, big data has been widely used in the management mode of different industries. The scientific research management of universities and research institutes can also be explored in the new technology management methods such as information technology and big data technology. For example, the establishment of a scientific research information platform, the whole process of project management, the whole process of thesis publication management, the whole process of scientific research achievements transformation and other scientific research management processes into the scientific research information platform, the formation of the unit of the scientific research management database, the use of big data can be transferred out of the unit of scientific research information at any time, can also grasp the status of the unit of scientific research management at a certain stage and analyze it.

4   Conclusions

Organized scientific research is the key to improve the overall scientific research level of colleges and universities. Organized scientific research management is the lubricant for colleges and universities to improve their scientific research strength and break through core technologies. How to carry out organized scientific research management requires colleges and universities to explore from top to bottom in an all-round way. Scientific research management departments should establish a new mode of organized scientific research management, focusing on strengthening planning and direction, strengthening overall planning and construction, strengthening system construction and other aspects of organized scientific research, playing a leading role in scientific research management, overall planning, analysis and research judgment. At the same time, cultivate professional scientific research management personnel, and build a scientific research management team that understands scientific research, values service, has ideas, combines full-time and part-time, and connects the upper and lower levels.

References

1. Ma, L. (2021) Accurately grasp the various relations of the education system in the period of the 14th five year plan. China Higher Education, 682(24):26-27.
2. Tang, Y. Wang, C. (2019) Analysis on the Current Situation of Scientific Research Management in Universities and Suggestions for Improvement. Technology and Innovation Management, 40(1):36-39.
3. Wei, Z. Zheng, J. (2021) Reflections on the Examination of Scientific Research Level in Universities. Journal of Anhui University of Technology (Social Sciences), 38(5):112-114.
4. Chen, Y. (2009) Research on university scientific research management mechanism based on national innovation system. Science and Technology Management Research,29(3):137-140.
5. Pan, H. Cao, X. He, M. (2020) Research on the Reform and Innovation of University Scientific Research Management. Heilongjiang Science, 11(17):56-57.
6. Yang, M. (2020) An analysis of scientific research management in universities. REN WEN TIAN XIA,12:98-99.
7. Zwick, M. (2021) Organizing core facilities as force multipliers: strategies for research universities. Journal of biomolecular techniques : JBT,32(1):36-41.
8. Gonzalez, N. M. Carvalho, T. C. M. D. B. Miers, C. C. (2017) Cloud resource management: towards efficient execution of large-scale scientific applications and workflows on complex infrastructures. Journal of Cloud Computing,6(1):1-20.