

Research on the path to enhance the innovation ability of university research teams in the new era

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Abstract: The scientific research team of colleges and universities is the main force for colleges and universities to carry out scientific and technological innovation. The strength of their innovation ability and innovation level determines the status of colleges and universities in the field of scientific and technological innovation in China, and also has an important impact on the development of national scientific and technological innovation ability. At present, although the overall innovation ability of the scientific research team in colleges and universities in China is gradually rising and has achieved excellent results, there are still some defects among them, which have become the primary problem hindering the scientific and technological innovation in colleges and universities in China. If the innovation is not carried out at the root of scientific and technological innovation, it may lead to the backwardness of the scientific and technological innovation ability of colleges and universities and even the national level, resulting in adverse chain reactions at multiple levels. Therefore, this paper deeply discusses the essence of team innovation ability, analyzes the main factors that affect the innovation ability of university research teams, expounds the deficiencies and causes of the innovation ability of university research teams in China, and puts forward solutions, hoping to fundamentally promote the innovation ability of university research teams, help their sustainable development, and also hopes to provide reference for professionals.

Keywords: university research team; innovation ability; Promotion strategy

With the increasing development of scientific level and the increasingly obvious trend of interdisciplinary integration, the scientific research field has entered the era of great science. As an important part of the big economy, the characteristics of the big science society are remarkable. Under the background of the era of big science, scientific research tasks have become more complex, and individual creativity has been unable to undertake existing scientific research tasks. Scientific research tasks have also changed from single person creation to multi person comprehensive cooperation and cooperation among different disciplines, and scientific research tasks are solved jointly in the form of scientific research teams. In the new era, scientific and technological innovation ability can effectively enhance its political, cultural, economic and technological strength, and even have an important impact on a country's international status. Therefore, all countries are striving to develop scientific and technological innovation systems in order to make important breakthroughs in this field. In the construction of the national scientific and technological innovation system, colleges and universities are the hotbeds of national scientific research innovation and knowledge innovation, playing a significant historical mission of connecting the past and the future. It can be said that the innovation level of the scientific research team in colleges and universities determines the future level of national scientific research development. Therefore, improving the innovation ability of the scientific research team in colleges and universities is of great significance to the construction of a high-quality scientific and technological innovation system. While the scientific research team in colleges and universities will be interfered by various aspects when improving their innovation ability, and these interferences also improve their innovation ability to a certain extent. Therefore, only if we have a correct understanding of the interference factors, find out their inherent laws and learn from them, and create strategies conducive to improving innovation ability, can we effectively promote the steady improvement of innovation ability of university research teams.

1. Conceptual Analysis of Innovation Ability of Scientific Research Teams in Colleges and Universities

The innovation ability of scientific research teams in colleges and universities refers to a kind of compound ability to better promote the progress of scientific research projects, explore science and technology, give full play to the effectiveness of team cooperation, adopt a scientific organizational structure, promote coordination and cooperation among members, and cluster individual creativity in scientific research tasks, so as to endow the team with creative thinking, and then engage in creative activities and produce creative results. Team innovation ability can provide greater development space for university research teams, and is an important embodiment of the academic value of team members. The team innovation ability is a combination of different abilities. Effective application in specific scientific research tasks can greatly promote the progress of scientific research and obtain more valuable scientific research achievements.

2. The Main Problems and Their Causes in the Improvement of Innovation Ability of Scientific Research Teams in Colleges and Universities

2.1 The original innovation ability of the team is not strong

With the progress of science and technology, the ability of independent innovation has attracted more and more attention from the

scientific and technological community. China's scientific and technological level is at an important stage of development, and more attention is paid to innovative ideas and achievements. As an important part of the national scientific and technological innovation system, the scientific research team in colleges and universities undertakes many original scientific and technological innovation tasks with creative nature, which is a long way to go. However, there are still some deficiencies in the original innovation ability of colleges and universities, resulting in the low level of innovation. The main reasons for this phenomenon are as follows: a. The number of scientific and technological papers published by Chinese universities in international top journals is rare, and the quality is uneven; b. China has not yet won the Nobel Prize, the highest level award in the scientific community. According to relevant statistics, most of the winners of this award come from first-class universities; c. Failure to optimize the allocation of resources has resulted in serious team "piling up". The phenomena of "apprentice workshop", "hitchhiking", "mom and pop shop" and so on are common in the team building, which make it difficult for the scientific research team in colleges and universities to develop continuously and hinder the realization of scientific research goals. In addition, many colleges and universities are unable to undertake major international scientific research projects due to their level problems, so it is difficult to have international cutting-edge advanced scientific research perspectives, and thus it is difficult to have high-quality scientific research achievements.

2.2 Unclear scientific research and innovation objectives of the team

In the development of traditional university research teams, the performance evaluation of their teams and individuals is mainly measured by the number of papers and monographs published, and even some scientific research achievements and projects are directly linked with fame and wealth, which runs counter to the true connotation of scientific research. In this situation, for the purpose of in-depth investigation of scientific research tasks and repeated demonstration of details, the scientific research achievements obtained are relatively rare, lacking in foresight and innovation, and unable to make important breakthroughs in a certain discipline. In addition, after a period of operation, some scientific research teams even lost their original research goals and focused on writing papers and reports, as well as striving for the number of projects and scientific research funds, which led to the failure of university scientific research teams to form an effective development system for innovation, while innovation has been in the exploratory stage.

2.3 Poor communication of information and innovation achievements

The reason why some university scientific research teams are formed is not to better explore scientific research tasks and obtain the latest scientific research achievements, but to obtain projects or blindly follow the trend. This kind of scientific research team is trapped in the body of formalism, and it is difficult to make great progress. In the progress of scientific research projects, the contact between members is not close enough, information communication is not smooth, and it is difficult to carry out effective cooperation. Finally, it is difficult for the whole scientific research team to create high value scientific research achievements. In addition, due to the differences in culture and language, scholars at home and abroad will have different degrees of difficulties in communication, unable to take full advantage of communication opportunities to obtain more scientific research information, and unable to improve the level of scientific research in communication. This is one of the reasons why the innovation ability of our university research teams lags behind that of developed countries.

2.4 Team leadership needs to be improved

If the scientific research team in colleges and universities wants to achieve the overall sustainable innovation, it must be based on the nature and task requirements of the team and constantly make effective breakthroughs in scientific research. To achieve this effect, the team leader must improve the leadership style. Therefore, the leadership style of the team leader plays an important role in improving the team's innovation ability. At present, the main problems in the leadership of scientific research teams in colleges and universities in China are as follows: □ Team leaders focus on external conditions such as striving for topics, winning funds and resources, neglecting the development of team innovation ability and failing to develop the team's innovation potential; □ The low degree of democracy and freedom in team leadership cannot activate team innovation and vitality; □ The rule of man is more than the rule of law. Once the person in charge is not on duty, the internal management of the team will stagnate, which is easy to cause problems such as insufficient cohesion, easy disconnection of coordination and innovation, etc; □ The team is utilitarian, and the responsible person has limited academic and management level, resulting in a weak team culture atmosphere and a lack of strategic and forward-looking. Therefore, team leadership is one of the reasons that hinder the improvement of the innovation ability of university research teams.

3. Strategies for Improving the Innovation Ability of Scientific Research Teams in Colleges and Universities

3.1 Optimize team leadership

3.1.1 Develop a scientific team leader selection system

The level of the team leader's comprehensive ability plays a vital role in improving the team's scientific research and innovation ability.

Therefore, the importance of selecting qualified responsible persons is self-evident, which is also an effective way for university research teams to effectively improve their innovation ability. In the area of team building, scientific formulation of leadership selection system should be carried out among members. When selecting the person in charge, everyone needs to compare the academic achievements and teaching achievements among candidates and select the best. First of all, the team leader must have academic foresight and a certain strategic vision, be able to effectively control the scientific research trend, find the correct scientific research development direction, and establish the final scientific research goal. Secondly, the person in charge should have a certain management ability, not only in academic coordination, but also in team cooperation to coordinate many issues between personnel, to ensure a harmonious team atmosphere and efficient execution. Finally, the team leader should also have personality charm, so that team members can focus on him and enhance team cohesion. The selection of team leaders based on these three system standards can improve the overall innovation ability of the team and promote the team to achieve better scientific research results.

3.1.2 Evaluate team leadership regularly

A good evaluation method can enable the scientific research team in colleges and universities to actually see the change of leadership style. By evaluating the effectiveness of leadership style, it can improve the management level of team leaders and promote the improvement of team innovation ability. The previous evaluation methods were relatively single and unsystematic, which could not be implemented, leading to the loss of their own value. Therefore, the leadership style in the team should be evaluated regularly by the following three points. First, evaluation methods. This can be divided into three types: internal evaluation of team members, self-evaluation of principals and external evaluation. The internal evaluation of team members is the focus of the entire evaluation system. They have the most direct feelings about the leadership style of the team leader, and the evaluation is authentic. Therefore, the team leader should pay attention to this evaluation and solve problems in a timely manner. The self-assessment of the person in charge is to evaluate the leadership style from a subjective perspective, which can view issues from a global perspective and is comprehensive. The external evaluation is the evaluation of other teams or experts and scholars, which puts forward effective suggestions for the improvement of the team's innovation ability to promote the team's growth; Second, the evaluation content. The assessment of the person in charge should include whether the team's innovation goals are clear; Whether the team members are harmonious and the information can be shared; Whether there is a good cultural atmosphere and respect for the growth of each member; Whether there are positive changes in the team before and after the person in charge takes over; Whether the person in charge has high academic ability and personality charm; Third, the evaluation process and results. The authenticity of the evaluation must be guaranteed to avoid that team members are unwilling to speak the truth due to face saving. The evaluation can be conducted anonymously; Conduct regular evaluation to make team members feel responsible for evaluation; The person in charge should pay attention to the evaluation results, improve the shortcomings and carry forward the advantages; If there is a big dispute about the leadership style, the person in charge should be replaced in time to ensure the team's innovation ability.

3.2 Attach importance to the organization and management of innovative teams

3.2.1 Reasonably set the organizational structure of the team

With the rapid development of science and technology, the research field of university research teams has become interdisciplinary. Therefore, if we want to effectively improve the team's innovation ability, we must optimize the team's organizational structure. In particular, in the scientific research team of colleges and universities, the structure of its internal members should be subject comprehensive, that is, integrating experts from multiple disciplines and research directions, so that the scientific research team can have interdisciplinary research capabilities. At the same time, the structure of the scientific research team in colleges and universities should also have a certain degree of dynamism, and the flexible way should be used to avoid the phenomenon of team building behind closed doors. The so-called flexibility refers to the fact that scientific research teams in colleges and universities often encounter some scientific research topics in different directions, so they need to find experts and scholars in the same direction to join the team. When the task is completed, these temporary members of the team will withdraw as needed, showing the advantages of flexibility. In a word, the scientific research team of colleges and universities should adjust the team structure reasonably with flexibility according to their own development status, promote the improvement of innovation ability, and obtain higher quality scientific research achievements.

3.2.2 Clarify the organizational responsibilities of team members

Different from administrative organizations and enterprise teams, the main task of scientific research teams in colleges and universities is to innovate. They also need to share knowledge among team members and cooperate in tackling scientific research problems. Therefore, it is not suitable to add too many administrative elements to the scientific research management team in colleges and universities, but the flat management mode is more consistent with it. The organizational structure of flat management has flexibility, which is not only conducive to the creation of a free atmosphere for the team, but also can give team members certain rights, promote the exchange and sharing of information among members, and help achieve team goals. The scientific research team in colleges and universities is small in scale. After using the flat management, it is helpful to clarify the responsibilities of each member in the team. That is, in addition to the leader in the academic field, the position and role of team members in the scientific research process should be determined, authorized and their behavior standardized, so as to stimulate the team to improve its innovation ability and also promote the innovation of team management.

3.3 Create an innovative team culture atmosphere

3.3.1 Strengthen the concept of team innovation

Colleges and universities provide a good platform and resources for the pursuit of academic freedom, and university research teams are just at its core. Because it regards knowledge innovation as the ultimate pursuit, the members of the team have a heart to study academia, hoping to produce greater value and obtain high-value academic achievements through their cooperation. However, compared with individual scientific research, team scientific research innovation is characterized by complexity due to the differences among members, which may adversely affect the improvement of team innovation ability due to personality, discipline background and team status. Therefore, the scientific research team of colleges and universities should strengthen the common innovation concept from the beginning of establishment, so that members can form a unified innovation belief among themselves. Under the influence of the unified innovation belief, team members will consciously follow the concept to invest in scientific research, optimize team cohesion, and create an innovative team culture atmosphere.

3.3.2 Create a diversified and inclusive team environment

The successful construction of cultural atmosphere can not be separated from the help of team environment. For university scientific research teams with a large number of innovative knowledge and innovative talents, the diversified team environment plays a key role in promoting the sustainable development of team cultural atmosphere. At present, the trend of interdisciplinary integration is becoming more and more obvious, and scientific research has also shown its multi-dimensional characteristics. In this context, scientific research teams must be heterogeneous in all aspects, which will inevitably increase the complexity of team management, including: different academic views, different academic directions, broad academic interests, etc. How to optimize these problems is a must to face in the process of improving the innovation ability of scientific research teams. We believe that the scientific research team in colleges and universities is an organization based on academic rights. Only when members of the team feel that the environment they are in is free, safe and relaxed can they focus more on scientific research and innovation. In a word, university research teams must create a diversified and inclusive team environment so that team members can live in harmony, work together, respect and support each other. Only in this way can they create a good academic and cultural atmosphere and promote the improvement of team innovation ability.

To sum up, improving the innovation ability of university research teams is an urgent problem to be solved in the current field of higher education in China. Relevant personnel must recognize the nature of the research teams, accurately find out the problems and causes of the current lack of innovation ability of university research teams, and take this as a basis to formulate corresponding optimization strategies. This paper puts forward three strategies, namely, optimizing the leadership of the team, paying attention to the organization and management of the innovation team, and creating an innovative team culture atmosphere, which are elaborated in detail to provide theoretical guidance for the improvement of the innovation ability of university research teams and promote scientific and technological progress.

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