

# The Current Status and Optimization Strategies of Scientific Research Management in Applied Universities

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**Abstract:** This article analyzes the deficiencies in the scientific research management of applied universities and proposes strategies for improvement. These shortcomings include the loss of scientific research talent, lack of clear research directions, insufficient construction of research platforms, and low quality of industry-university-research cooperation. The article suggests optimizing research management by establishing talent introduction mechanisms, strengthening practical teaching, clarifying research objectives, enhancing research cooperation and technology transfer, improving research platform construction, and strengthening industry-university-research collaboration. The aim is to enhance the level of scientific research, promote technological innovation and industrial upgrading, and support national and local economic development.

**Keywords:** Applied Universities; Scientific Research Management; Policy Research.

## 1. The Emergence and Development of Applied Universities

Applied universities, which primarily focus on undergraduate education, are conceptually distinct from research-oriented universities. With the advancement of modern economic construction and the popularization of higher education in China, applied universities began to emerge and rapidly develop in the late 1980s. The positioning of applied universities is to cultivate high-level applied talents who directly serve the economic construction and social development<sup>[1]</sup>. Compared to traditional university education, applied universities place greater emphasis on the cultivation of practical and innovative abilities, highlighting the development of students' professional and applied skills to enable them to quickly adapt to and integrate into the social workplace.

Applied universities have their own distinctive features in curriculum design, faculty development, and scientific research management. The following text mainly analyzes the current status and optimization strategies of scientific research management in applied universities. These universities place greater emphasis on the transformation and application of scientific research achievements, encouraging faculty and students to translate theoretical knowledge into practical application outcomes, which promotes technological innovation and industrial upgrading. At the same time, applied universities also focus on cooperation with enterprises, carrying out horizontal scientific research projects, and promoting industry-academia cooperation to achieve the transformation and dissemination of scientific research achievements. Overall, the rise and development of applied universities is an inevitable result of higher education adapting to the development of the economy and society. They start and end with the cultivation of applied talents, focusing on practical teaching and industry-academia cooperation, and emphasizing the transformation and application of scientific research achievements. In future development, applied universities will continue to play a

significant role in cultivating more high-quality applied talents for society<sup>[2,3]</sup>.

## 2. Current Status and Existing Problems of Scientific Research Management in Applied Universities

Scientific research is one of the important missions of higher education institutions. As an integral part of the higher education system, the conduct of scientific research work in applied undergraduate colleges is not only an urgent need to enhance the national capacity for innovation but also a necessary path to improve their own academic standards and achieve sustainable development. However, the scientific research work in applied undergraduate colleges generally started later and has a relatively lower level of overall development, with a certain gap compared to traditional undergraduate institutions. There are still many deficiencies in the scientific research management of applied universities.

### 2.1. The Construction of Scientific Research Talents in Applied Universities is Not Fully in Place

The talent drain in applied universities is severe. Due to the relatively poor research atmosphere and conditions in these institutions, there is a lack of attractiveness and an environment to retain research talents, leading to a significant loss of scientific research personnel. These talents often have weaker competitiveness within the academic community, making it difficult for them to secure better career development opportunities. The universities' lack of emphasis and support for research talents, coupled with an inability to provide a conducive research environment and conditions, results in a lack of sense of belonging and identification among research talents towards their institutions. This has led to the outflow of some excellent research talents, further weakening the universities' research capabilities. The structure of research talents in applied universities is often

unreasonable; these universities frequently lack high-level, interdisciplinary research talents, which hinders the overall improvement of the research team's level. Moreover, applied universities lack leading figures and academic leaders with international influence, preventing them from securing a place in the academic community. The lack of interdisciplinary and cross-domain cooperation and exchange prevents the formation of competitive research teams. This unreasonable structure of research talents makes it difficult for the institutions to achieve breakthroughs in the field of scientific research. Applied universities often focus on teaching at the expense of research, with insufficient training and development for research talents, leading to a need for improvement in the quality and level of these talents. There is a lack of training and development programs for research talents in applied universities, which fails to enhance their research capabilities. The lack of support and encouragement for research activities results in a lack of motivation and confidence among research talents during their research processes. This leads to weaker competitiveness among research talents in the academic community, making it difficult for them to achieve significant research outcomes.

## **2.2. Applied Universities Lack Clear Research Directions and Objectives**

The lack of clear research directions and objectives is a common issue in applied universities. These institutions often lack distinctive features and advantages in their research focus and goals, making it difficult for them to establish their own brand and influence in the academic community. There is an absence of overall planning for the construction and development of disciplines, which prevents the formation of characteristic academic directions and research fields<sup>[5]</sup>. Applied universities also lack attention and integration with the needs of industries and local economic and social development, making it challenging for them to leverage their strengths and characteristics in specific areas. Additionally, applied universities are relatively weak in terms of research cooperation and exchange, lacking close collaboration and communication with external institutions and enterprises. On one hand, there is a lack of cooperation mechanisms with governments, industry organizations, and enterprises, making it difficult to obtain external support and resources. On the other hand, there is a lack of information and resource-sharing platforms for research cooperation and exchange, which hinders the formation of interdisciplinary and cross-domain collaborative research. Applied universities also face certain difficulties in the transformation of research results, finding it hard to apply research findings to practical production and life to achieve social and economic benefits. On one hand, there is a lack of support and encouragement mechanisms for the transformation of research results, which makes it difficult to stimulate researchers' motivation for transformation<sup>[4]</sup>. On the other hand, there is a lack of close integration with enterprises and industries, making it difficult to apply the results to actual production and markets.

## **2.3. Applied Universities Lack Research Platform Development**

Applied universities often fall short in the construction of research platforms. There is a certain deficiency in research facilities, lacking advanced research equipment and laboratory hardware conditions. On one hand, the research funding of the universities is limited, making it difficult to

allocate sufficient funds for the purchase and updating of research equipment. On the other hand, there is a lack of planning and construction for research facilities, leading to a certain degree of blindness and redundancy in the acquisition and use of equipment. In terms of research team building, applied universities also have certain shortcomings, lacking high-level, interdisciplinary research talents, which results in the need to improve the overall level of research teams. On one hand, the universities lack leading figures and academic leaders with international influence, preventing them from securing a position in the academic community. On the other hand, there is a lack of interdisciplinary and cross-domain cooperation and exchange, which hinders the formation of competitive research teams. Applied universities also face issues with the standardization of research management, lacking effective management and services for research activities. On one hand, there is a lack of scientific management mechanisms for the initiation, progress, and quality of research projects. On the other hand, there is a lack of evaluation and incentive mechanisms for research personnel, making it difficult to stimulate their enthusiasm and drive for innovation.

## **2.4. Applied Universities Lack High-Quality Industry-Academia Collaboration**

The lack of high-quality industry-academia collaboration in applied universities is an issue that urgently needs to be addressed. In terms of industry-academia collaboration, applied universities often face the dilemma of weak cooperation intentions. On one hand, enterprises do not place high expectations on cooperation with universities, focusing more on short-term benefits, while the research outcomes of applied universities are difficult to align with the needs of enterprises. On the other hand, the universities themselves do not place enough emphasis on industry-academia collaboration and lack proactive mechanisms for establishing cooperative relationships.

Applied universities also face the issue of having a singular cooperation model in industry-academia collaboration. Most collaborations are limited to basic models such as technology transfer and project commissioning, lacking deeper cooperation in areas like technology research and development, and talent cultivation. This singular cooperation model restricts the effectiveness and impact of industry-academia collaboration.

Furthermore, applied universities are confronted with a scarcity of cooperation resources in industry-academia collaboration. On one hand, universities lack effective platforms and channels for industry-academia collaboration, making it difficult to effectively connect with the industry. On the other hand, the research resources and conditions of the universities are relatively insufficient, failing to meet the demands and expectations of enterprises.

## **3. Strategies for Enhancing Scientific Research Management in Applied Universities**

The scientific research management of applied universities needs to be closely integrated with talent cultivation and the characteristics of applied education, focusing on the development of practical abilities and an entrepreneurial spirit, leveraging the complementary advantages of schools, industries, and enterprises, and promoting a tight integration

of scientific research with practical applications. By enacting preferential policies and improving salary packages, high-level, interdisciplinary research talents can be attracted to work at the university, while also strengthening the assessment and evaluation of these talents. Applied talents are those who can apply their learned knowledge, skills, and qualities to practical work and create value.

The scientific research management of applied universities needs to be closely aligned with talent cultivation, aiming to cultivate high-quality applied talents with an innovative spirit and practical abilities. Firstly, applied universities need to establish a scientific talent introduction mechanism. When recruiting teachers and building research teams, emphasis should be placed on selecting applied teachers who have both an academic background and practical work experience. At the same time, more external resources can be introduced by cooperating with enterprises and inviting industry experts, enriching the university's research capabilities.

Secondly, in terms of talent cultivation, applied universities need to focus on the development of students' practical abilities and entrepreneurial spirit. Through curriculum design, internships, and practical projects, students are encouraged to apply theoretical knowledge to the solution of real-world problems. Concurrently, collaborations with enterprises and industry associations can be established to jointly conduct project research, allowing students to hone their application skills within actual projects.

Furthermore, applied universities need to establish effective incentive mechanisms to encourage both faculty and students to actively participate in scientific research activities. This can be achieved by setting up research awards and providing financial support for scientific research, which can stimulate the enthusiasm and motivation of faculty members for research. At the same time, it is also necessary to encourage student involvement in research projects and offer the necessary support and guidance. Lastly, the scientific research management of applied universities needs to focus on integration with industry. By cooperating with enterprises and combining industry, academia, and research, the university can promote the transformation of research outcomes into practical application values. Additionally, it is important to pay attention to societal needs and the practical requirements for problem-solving, conducting scientific research activities with the aim of addressing real-world issues.

Applied universities need to clarify their research directions and objectives, and enhance the school's research level and influence by formulating scientific development plans, strengthening research cooperation and exchange, and promoting the transformation of research outcomes. It is also important to integrate this with the characteristics of talent cultivation in applied universities, aiming to carry out scientific research work that cultivates high-quality applied talents with an innovative spirit and practical abilities.

Applied universities need to establish a scientific and clear research development plan, defining the school's research directions and objectives, and forming distinctive and advantageous research fields. On one hand, the research development plan can be formulated in line with the school's disciplinary strengths and local economic development needs; on the other hand, by strengthening interdisciplinary integration, distinctive cross-disciplinary research directions and fields can be formed.

It is necessary for applied universities to strengthen close

cooperation and exchange with external institutions and enterprises, broadening the channels and platforms for research cooperation. On one hand, cooperative relationships can be established with governments, industry organizations, and enterprises to jointly undertake research projects; on the other hand, a research information sharing platform can be built to promote communication and collaboration among researchers. By enhancing cooperation and exchange, resource sharing can be achieved, research efficiency can be improved, and it is also beneficial for applying research outcomes to practical production and markets.

Applied universities need to promote the transformation and application of research outcomes to achieve social and economic benefits. On one hand, a mechanism for the transformation of research outcomes can be established to encourage researchers to apply their results to practical production and markets; on the other hand, close cooperation with enterprises can be strengthened to carry out industry-academia research cooperation projects, realizing the transformation and application of scientific and technological achievements. At the same time, the commercial application of scientific and technological achievements can also be promoted through methods such as patent applications and technology transfers.

Applied universities need to strengthen the construction of research platforms, enhance the level of scientific research at the school through measures such as strengthening research facilities, promoting the construction of research teams, and standardizing research management. It is also important to combine this with the characteristics of talent cultivation in applied universities, aiming to conduct scientific research work that cultivates high-quality applied talents with an innovative spirit and practical abilities.

Applied universities need to strengthen the construction of research facilities, providing advanced research equipment and laboratories as hardware conditions. On one hand, investment in research funds can be increased to ensure sufficient funds are available for the purchase and updating of research equipment. On the other hand, planning and construction of research equipment can be enhanced to ensure that the acquisition and use of equipment meet research needs. Additionally, the utilization rate and benefits of research facilities can be improved through resource sharing and the establishment of open laboratories.

Applied universities need to promote the construction of research teams and improve the overall level of these teams. On one hand, high-level, interdisciplinary research talents can be introduced to enhance the school's disciplinary influence and competitiveness. On the other hand, interdisciplinary and cross-domain cooperation and exchange can be encouraged to form competitive research teams. At the same time, establishing evaluation and incentive mechanisms for research teams can stimulate the team's vitality and innovative drive.

Applied universities need to strengthen the standardization of research management to ensure the orderly and efficient conduct of research activities. On one hand, a scientific project management and evaluation mechanism can be established to ensure effective control over the quality and progress of projects. On the other hand, a reasonable evaluation and incentive mechanism for research personnel can be established to stimulate their enthusiasm and drive for innovation. Additionally, the management and transformation of research outcomes can be strengthened to promote the

application and transformation of scientific and technological achievements.

Applied universities need to enhance the intensity and quality of industry-academia collaboration. Firstly, applied universities need to strengthen their willingness to cooperate with enterprises. On one hand, this can be achieved by enhancing communication and exchange with enterprises to understand their needs and expectations, thereby increasing the trust and satisfaction of enterprises with the university. On the other hand, establishing industry-academia collaboration platforms that provide opportunities for information sharing and resource integration can stimulate enterprises' enthusiasm for cooperation with the university.

Secondly, applied universities need to expand the models of industry-academia collaboration. Beyond basic models such as technology transfer and project commissioning, further exploration of deeper cooperation models like technology research and development, and talent cultivation can be pursued. By jointly conducting research projects with enterprises, the universities can achieve co-development and innovation of technology. At the same time, bringing enterprises into the campus to provide students with practical and internship opportunities can closely align talent cultivation with industry demands.

Applied universities need to strengthen the integration of resources in industry-academia collaboration. On one hand, establishing industry-academia collaboration information sharing platforms can integrate resources from both the university and enterprises, achieving information sharing and resource optimization. On the other hand, building interdisciplinary and cross-domain cooperation platforms can promote exchange and cooperation between different fields. By enhancing the integration and utilization of resources, the effectiveness and benefits of industry-academia collaboration can be improved.

Applied universities need to establish long-term and stable cooperative relationships, achieving mutual development with enterprises on the basis of mutual trust and benefit. By establishing cooperation mechanisms, the stability and continuity of industry-academia collaboration can be ensured. Additionally, by establishing mechanisms for the transformation and application of cooperative outcomes, research results can be translated into actual productivity and competitiveness. This kind of long-term and stable cooperative relationship also helps to enhance the university's research level and academic influence.

In the new historical period, applied undergraduate colleges should place greater emphasis on scientific research

work, striving to improve the overall level of research by perfecting hardware facilities, enhancing the quality of the teaching staff, and optimizing management systems. At the same time, they should draw on the research experience of traditional undergraduate colleges and continuously explore research models suitable for their own development, in line with their characteristics, to promote the sustainable development of scientific research work. In addition, they should focus on cooperation with enterprises and industries, strengthen industry-academia collaboration, and achieve an organic combination of technological innovation and industrial upgrading, providing strong support for national and local economic development.

Therefore, to enhance the level of scientific research and promote technological innovation, applied universities must focus on building a team of scientific researchers, clarifying research directions and objectives, strengthening the construction of research platforms, and improving the quality of industry-university-research cooperation. By implementing these strategies, applied universities can better serve the economic and social development, cultivate high-quality applied talents, and achieve breakthrough results in the field of scientific research.

## References

- [1] Xu Jing, Shi Le. Research on the Path to Enhancing High-Level Applied Scientific Research Capacity in Local Universities: Taking Beijing Union University as an Example [J]. *Strait Science and Industry*, 2021, 34(07): 43-47.
- [2] Su Yifan, Ying Rongqiu, He Zhiwei. The Development of New Quality Productivity Forces and Innovative Action for the Talent Cultivation Model of High-level Applied Universities [J]. *Modern Education Management*, 2024, (11): 1-13. DOI: 10.16697/j.1674-5485.2024.11.001.
- [3] Song Qing, Zhou Yajun, Wang Fujun, et al. High-quality Development of Application-oriented Universities: Connotation, Principles and Practical Paths [J]. *Journal of Yangzhou University (Higher Education Research Edition)*, 2022, 26(04): 28-34. DOI: 10.19411/j.cnki.1007-8606.2022.04.004.
- [4] Zhou Tong. Research on the Construction of Faculty Team in Application-oriented Universities from the Perspective of the New Round of Audit Evaluation [J]. *Journal of Beijing Union University*, 2024, 38(05): 1-6. DOI: 10.16255/j.cnki.lxbz.2024.05.001.
- [5] Wang Yong, Mao Mengyun, Zhou Jian. Path Selection for the Comprehensive Reform of the System and Mechanism of Discipline Construction in Applied Universities [J]. *Industry and Science Forum*, 2024, 23(16): 219-221.