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Exploration and Research on the Transformation Path of Scientific Research Achievements in Local Universities under the Background of Production, University and Research

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Abstract: Relying on local resources and economic advantages, local universities are gradually becoming the main force of basic research, and have obtained a large number of scientific research and academic achievements in some disciplines. However, no matter the key universities directly under the state or the local universities are faced with the common situation that the scientific research achievements can not be effectively transformed into real productive forces. As the backbone of undergraduate education in China and the main force serving the high-quality development of local economy and society, application-oriented local undergraduate universities should consolidate their disciplinary advantages, improve the scientific research management and operation mechanism, set up high-level scientific research teams, strengthen the high-level achievement consciousness, innovate the achievement evaluation mechanism, and strive to achieve unique and high-level development. Based on the background of production, university and research, this paper discusses the new way of transforming scientific research achievements in applied local universities.

Keywords: Industry-university-research; Local Undergraduate University; Scientific Research Achievement.

1. Introduction

The transformation of scientific research results plays a key role in modern society and economy. With the continuous progress of science and technology, the new technologies and innovations developed have brought great potential and opportunities to society. The transformation of scientific research results is the process of transforming innovative ideas from research into actual products, services or applications, which can not only drive economic growth, but also solve many social problems. Therefore, it is very important to study the strategy and practice of the transformation of scientific research results.

With the rapid development of global economy and science and technology, as a social talent reserve base, the discipline construction of colleges and universities plays an increasingly important role in promoting national scientific and technological innovation and personnel training. As a new discipline construction model, the integration of production, university and research closely combines industry, academic and research to improve the innovation ability and core competitiveness of colleges and universities. The integration of industry, university and research emphasizes the close cooperation between universities, industry and academia to realize resource sharing, complementary advantages and collaborative innovation, which helps to improve the scientific research level of universities and cultivate high-quality talents, thus promoting national scientific and technological innovation and economic development [1]. At present, there are some problems in the transformation of scientific research achievements in colleges and universities, such as insufficient transformation of scientific research achievements and low success rate. However, under the background of mass entrepreneurship and innovation vigorously advocated by the state, colleges and universities are required to vigorously promote the transformation of scientific research achievements and realize the integration of production, university and research.

2. Problems Existing in the Transformation of Scientific Research Achievements in Local Colleges and Universities

At present, the conversion rate of scientific and technological achievements in Chinese universities is still at a low level. According to relevant survey and statistical data, the conversion rate of scientific and technological achievements in universities in developed countries can reach 40%, while that in Chinese universities is only about 10%, and the conversion rate in local universities is even lower, and the gap is more obvious [2]

2.1. The Scientific Research Strength of Local Undergraduate Universities is Relatively Weak

First, in terms of scientific research investment, colleges and universities, as the traditional key areas of scientific and technological innovation, have their unique advantages, such as continuous and stable research platform investment, a steady stream of new scientific and technological forces, the most cutting-edge scientific research direction, and multi-channel channels for the display of scientific research results, etc., but specific to each college and university, especially local colleges and universities, there are shortcomings in development. The investment of scientific research funds in national "double first-class" universities is much higher than that of ordinary universities and local universities, which is determined by the hardware and software conditions such as the construction of scientific research platforms and the level

of scientific research. It is not impossible to change, but there are certain difficulties in making big changes in a short period of time.

Second, from the aspect of talent introduction, local colleges and universities have certain shortcomings, because of their geographical or disciplinary advantages are not obvious, talent introduction is difficult. At the same time, the mobility of talents is large, and most scientific researchers tend to use local universities as a springboard for doctoral examination or going abroad to seek better units. Although there are service contracts signed with universities, generally speaking, there are many defaulters, and local universities often lose money and lose people. Due to the large mobility of scientific research talents, in most cases, the research has breadth, but the research lacks depth, the duration of scientific research is short, and there are problems in the survival of scientific research talents.

Third, from the starting point of researchers, the focus of scientific research in universities, from the long-term development history, many scientific research has its goal to stay in the publication of high-quality papers, most of the researchers are pursuing the scientific research results can be published in a higher level of scientific journals, can be published in what journal, whether priority publication, impact factors, etc. This is related to the inherent assessment mode of universities, but it has certain resistance to whether or not scientific and technological achievements can be transformed [3].

2.2. The Deviation between Local Undergraduate Universities and Regional Market Demand

Science and technology are constantly developing and improving, while market demand is also constantly changing. In order to fully meet market demand for scientific and technological achievements, it is necessary for colleges and universities to turn passive into active and effectively cooperate with the market. However, local colleges and universities, on the one hand, lack scientific research capabilities, weak research platforms and research forces, and on the other hand, there are cases of derailing market demand in scientific research. Most of the scientific research is still in the publishing of high-quality papers, results conversion rate is not high.

With the policy incentive of mass entrepreneurship and innovation, the research and development and transformation of high-tech achievements cannot be completed in a short period of time, and the transformed innovation and entrepreneurship projects often overlap with the existing industries in the market, so there are shortcomings in terms of market share and product publicity strategy, and they cannot form brand effect. Therefore, many innovative and entrepreneurial projects that transform scientific and technological achievements can only be digested within their own jurisdiction, and it is difficult to enter the public vision.

2.3. Local Undergraduate Research Policy Support is Weak

In recent years, the total amount of scientific research achievements such as university papers and patents has increased significantly, but there are few high-quality achievements with market value. Although many university teachers and students participate in innovation and entrepreneurship competitions and get certain results, they only stay in the award certificate. The fundamental reason lies in the orientation of China's university scientific research support system and the targeted policy of students' postgraduate entrance examination. Secondly, although the scientific research achievements of universities are abundant and the professional theory is strong, due to the insufficient connection between universities and enterprises, universities cannot grasp the technical problems faced by enterprises in detail, and cannot develop scientific research directions in line with the market, resulting in a disconnect between scientific research achievements and practical needs. Thirdly, the transformation of scientific research achievements in universities lacks innovation and systematization. At present, there is no platform construction, transformation system, transformation mechanism, transformation model and transformation evaluation system aiming at the transformation of scientific research achievements in universities, which is one of the main bottlenecks at present.

The government has insufficient investment in the transformation of scientific research achievements, which is a process from small to pilot to finally put into the market. The pilot stage requires high costs, and universities are often unable to support the high costs of pilot trials due to the limitation of scientific research funds, coupled with the current teacher evaluation system, scientific research achievements often only stay in the laboratory stage. In terms of the transformation of scientific research achievements, the government lacks clear guidance and encouragement measures, resulting in the lack of transformation intermediaries, which makes the information between schools and enterprises not smooth, unable to achieve effective docking, and thus restricts the transformation of scientific research achievements. In terms of the transformation of scientific research results, the corresponding legal system measures are not perfect, which makes the transformation of scientific research results have a certain resistance in the implementation process.

3. Analysis of Reasons for Low Conversion Rate of Scientific Research Results

3.1. Differences in the Concept of Production, University and Research

In recent years, China's economy has developed rapidly, but the regional differences are obvious, and the focus on industry-university-research cooperation is also different. Therefore, the teaching orientation of local undergraduate universities should not only meet the requirements of social regional development, but also meet the innovation needs of enterprises. Universities should focus on solving the problems existing between local economic development and industry-university-research cooperation, such as insufficient scientific and technological innovation, not closely integrated with social needs, insufficient motivation for researchers to solve practical problems, uneven allocation of resources, low utilization and conversion rate of achievements, and constraints of different factors in long-term mechanism.

3.2. The Teaching Model Does Not Match the Demand of Industry, University and Research.

The development of the teaching mode of production,

university and research in China started late, and the transformation and upgrading of the industry, as well as the emergence of new formats, new technologies and new models, put forward higher requirements for the cultivation of college talents. In recent years, colleges and universities have been actively exploring the personnel training mode of industry, university and research to meet the needs of economic development. However, due to the many factors involved in the personnel training mode of industry, university and research, the development is slow and does not match the needs of industry, university and research [4].

3.3. Lack of Effective Evaluation System of Production, University and Research Achievements

At present, there are many universities in China, scientific and technological talents are sufficient, scientific and technological achievements are abundant, and the transformation of scientific and technological achievements in colleges and universities has also made remarkable progress. However, the scientific and technological achievements in colleges and universities have some problems, such as insufficient practicality and low conversion efficiency. The survey shows that the achievements of major scientific and technological innovation in China are far lower than the number of SCI papers [5]. To sum up, a reasonable and scientific performance evaluation index system and information platform based on information conditions are conducive to the development of university-industry-research cooperation.

4. Establish a Model to Strengthen Communication with the Government and the Market

For local colleges and universities, whether it is among the national "double first-class" construction universities, or to improve the school quality, scientific research capacity and the conversion rate of scientific and technological achievements account for a large proportion. Therefore, in order to improve the transformation degree of scientific and technological achievements, local colleges and universities need to strengthen the connection with the market, strengthen their own capacity building, coordinate and integrate resources, and form universities with local characteristics.

4.1. Strengthen Communication with the Government and the Market

As can be seen from the national construction of scientific research bases, emerging scientific research institutions will certainly have an impact on traditional scientific research institutions such as colleges and universities. Therefore, all provinces are actively applying for comprehensive innovation centers. Colleges and universities should also conform to the trend and take the initiative to join the government in new forms while improving their own scientific research capabilities and transforming scientific and technological achievements. At the same time, local governments should become the leaders and sponsors of innovation bases, provide policy guidance and support for the construction of innovation bases in the region, build platforms for joint innovation between universities and enterprises, and between universities and emerging scientific research bases, design practical and specific policies for the transformation of scientific and technological achievements, and encourage university researchers to combine their own professional expertise and market demand to conduct scientific research and transformation of results. Strengthen the integration of universities and emerging innovation bases, introduce external capital, increase investment in the transformation of scientific and technological achievements, in addition to financial support for the formation of school-enterprise joint innovation teams, there should be simplified relevant processes, tax relief and other policies.

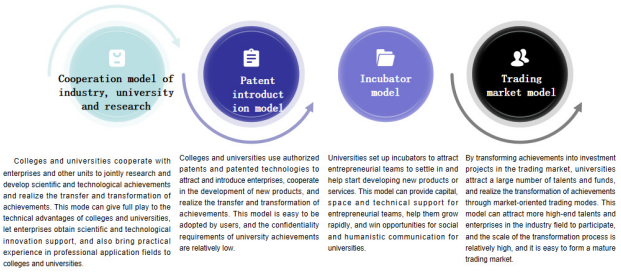

Fig 1. Universities strengthen innovation cooperation with enterprises and governments

4.2. Local Undergraduate Universities Should Develop in the Direction of Production, Learning and Research



Fig 2. Local Undergraduate Universities Should Develop in the Direction of Production, Learning and Research

Scientific research is one of its functions. From the perspective of the current national development strategy and the future development direction of colleges and universities, only publishing scientific research results as high-quality papers can no longer meet the long-term development of colleges and universities. Local colleges and universities should combine the local economic characteristics and the discipline characteristics of colleges and universities, integrate their scientific research platforms and researchers, and combine the national scientific research strategic objectives. Build a scientific research team with several majors to study the local characteristics and the disciplinary characteristics of universities, and combine them with industrial poverty alleviation. Take the university where the author works as an example, the school's disciplinary characteristics are foreign language majors, and the school is located in the Yangtze River Delta region. Based on its own disciplinary characteristics, the school applies foreign language majors to local social services and does a good job in translation services. It can not only enhance the development of the local foreign trade industry, enhance the local internationalization construction, and expand the international influence. Of course, in terms of the transformation of scientific and technological achievements, the school still needs to strengthen the grasp of policies and

modify the corresponding policies of the school, so as to adapt to the national policies and the current economic situation, and stimulate the majority of scientific researchers.

4.3. We will Establish an Evaluation System to Enhance the Effectiveness of Industry-University-Research Cooperation

The shortcomings of local colleges and universities lie in the intensity of scientific research investment and researchers: First, although each university has the investment in scientific research funds, the investment intensity of each university is different, of course, this is related to the situation of colleges and universities, but once the scientific research ability is improved, the scientific research investment will definitely increase, so as to form a positive scientific research environment. Colleges and universities should combine their own conditions to increase the investment in superior disciplines. Strengthen the proportion of investment in weak links; Second, local colleges and universities have shortcomings in the introduction of scientific research personnel. Therefore, on the one hand, colleges and universities should increase the investment in their established scientific research forces, including the cultivation, training and learning of scientific research forces, but also strengthen the role of the backbone of scientific research, and strengthen the training of emerging talents in their own majors or disciplines, such as students with scientific research ability. On the other hand, it is necessary to strengthen the introduction of talents, including salary, scientific research investment and other aspects.

Colleges and universities need to establish a fair and effective evaluation system for scientific research achievements, and establish a reasonable performance evaluation system for industry-university-research at the level of evaluation indicators and evaluation modules. Colleges and universities should develop an evaluation system for input and output factors. The input factors mainly include input funds, talents, etc., and the output factors mainly include economic benefits and achievements. We should base on the above factors and carry out detailed research, combined with the actual development of objective evaluation criteria. Basic data should be improved, data collection database of industry-university-research cooperation should be established, and scientific analysis should be carried out to simplify the process and improve efficiency. Scientific collection methods, such as sampling survey, literature retrieval survey and questionnaire survey, should be adopted to collect data. The transformation of scientific and technological achievements involves various aspects, and colleges and universities should pay particular attention to coordinating the income distribution relationship with scientific and technological personnel. Colleges and universities should not only have a thorough understanding of various national and local policies, but also formulate policies for the transformation of scientific and technological achievements that are compatible with the transformation of scientific and technological achievements of their own schools, so as to ensure that the intellectual property rights of schools and researchers are not infringed. It is also necessary to ensure the proportion of investment in research platforms and income distribution of researchers, and to do a good job in publicity and promotion of scientific and technological achievements.

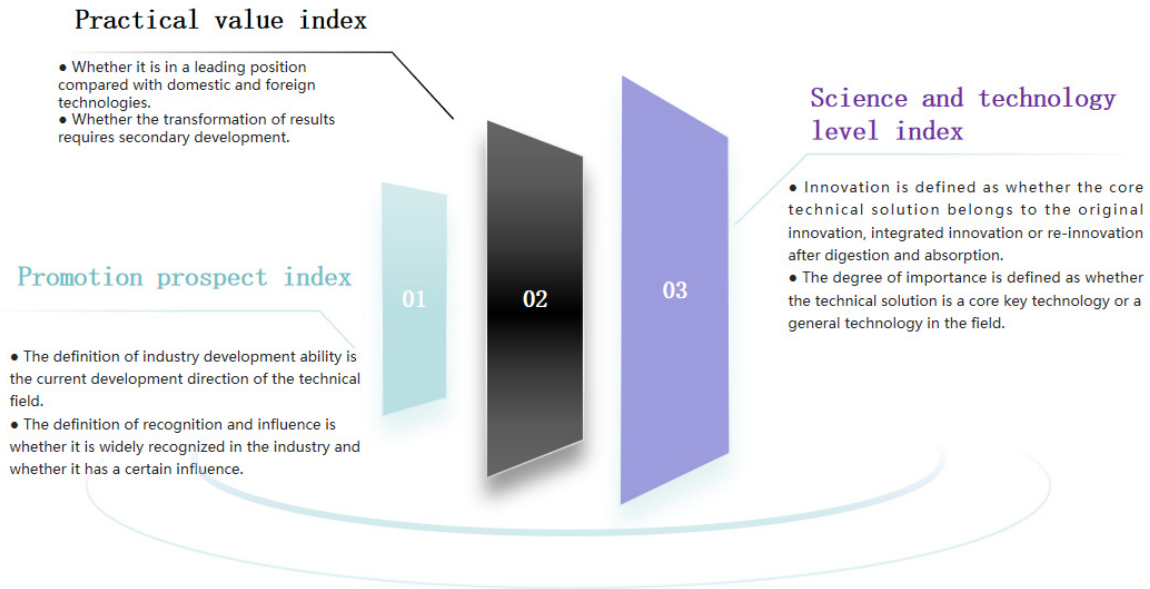

Fig 3. Module diagram of efficiency evaluation system for industry-university-research cooperation

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