Research on training mechanism of innovative talents in combination with production, study and research in universities

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Abstract. The innovative talent training mechanism in colleges and universities plays an important role in adapting to the development needs of The Times, and is an effective way to promote the quality of talent training in colleges and universities and improve the conversion rate of scientific and technological achievements. Taking the cultivation of innovative talents as the starting point, this paper comprehensively analyzes the necessity and bottleneck problems of the implementation of the current training mechanism, and puts forward the innovative teaching model and formulates the matching training plan. Strengthen school-enterprise cooperation and cultivate innovative talents; Improve teachers' ability of scientific research and innovation, improve the quality of classroom practice teaching; Optimize the classroom teaching content, improve the production, university and research personnel training mechanism of four innovative talent training mechanism implementation path, and from two aspects of theory and practice to explore how to optimize the university production, university and research combined innovative talent training mechanism, promote the deeper integration of university production, university and research, promote the transformation and upgrading of university talent training mode.

Keywords: Industry-university-research, Personnel training, Colleges and universities, Classroom teaching

1 Introduction

In recent years, higher education has gradually formed an important strategic goal with talent training as the core in its transformation and development. As an important talent training base and the main body of scientific research and innovation, colleges and universities are playing an increasingly important role in promoting industrial and social economic development. As a new mode of cooperation in scientific and technological innovation, the combination of university production, university and research has unique advantages, especially in the aspects of technological innovation, achievement transformation and personnel training[1-2].

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Talent training in colleges and universities only relies on theoretical basic education, which can no longer fully meet the urgent needs of the current social development for skilled talents. To this end, the Ministry of Education clearly pointed out in the "Fourteenth Five-Year Plan" to innovate the school-running mode, deepen the integration of industry and education, school-enterprise cooperation, and further optimize the innovative development of the existing teaching mode[3]. At the same time, in the Opinions of The General Office of the State Council on Deepening the Integration of Industry and Education, it is further emphasized that the enthusiasm of universities and enterprises should be fully mobilized to realize the deep integration of industry, education and research, and promote the reform of talent training in universities with the latest needs of industrial and technological development.

Since the 18th National Congress of the Communist Party of China, General Secretary Xi Jinping has paid great attention to the development of higher education and talent training in China, and has put forward important discussions on the development of innovative science and technology and talent training for many times, which provides a valuable action guide for us to better carry out scientific and technological innovation and talent training. As an important carrier of China's higher education and higher personnel training, colleges and universities shoulder the important historical mission of educating people for the Party and the country. With the continuous shift of international competition to talent competition, the mode of talent training in colleges and universities needs to be guided by the national industry and technology development, and continuously innovate the talent training mechanism. As an effective form and strategic way of scientific and technological innovation, industry-university-research cooperation has risen to the height of national science and technology strategy, and has been highly valued and vigorously promoted by governments at all levels. Industries, institutions of higher learning and scientific research institutions cooperate with each other through project drive, achievement transformation and other forms to give play to their respective advantages, so as to form a powerful advanced system of research, development and production more quickly and efficiently, and reflect comprehensive advantages in the operation process.

2 The necessity of combining the implementation of innovative talent training mechanism with industry, university and research

The combination of industry, university and research in universities refers to a kind of industry-university-research cooperation mode formed by the close connection between higher education institutions and industries and scientific research institutions. This mode is the relationship between the response of higher education to social needs. Through interaction and cooperation, it promotes scientific and technological innovation and improves the quality of talent training. The combination of industry, university and research in colleges and universities provides more practical basis for talent training, enabling students to go deep into the actual social environment and combine with the actual needs. This kind of talent training method is more in line with the needs of

the society. The combination of industry, university and research in universities can also promote the transformation of talent training in universities to be more application-oriented, practical and innovative[4-5].

In the course of more than 70 years of development of China's higher education, the reform, innovation and development of talent training mechanism again and again are all to better adapt to the needs of the country and the development of The Times for higher talents. Since the 19th CPC National Congress, General Secretary Xi Jinping has pointed out many times that "today's world is undergoing profound changes unseen in a century." This is the general trend of international development. Our higher education also needs to adapt to the new situation, new trends and new needs of The Times. In training students, colleges and universities also need to view problems from a broader perspective, and can not only take the study of theoretical knowledge from textbooks as the only criterion to judge students' learning situation. Therefore, the author thinks that it is imperative to carry out the training mechanism of combining industry, university and research.

First, the need to cultivate students' innovative and development thinking. The innovation and development of theoretical technology usually requires that in the process of practicing and solving problems, through repeated thinking of complex problems or difficulties, so order to produce innovative thinking and new ideas and new methods to solve problems. Second, teachers should innovate teaching methods and improve the quality of classroom teaching. At present, the teaching of college teachers takes the basic knowledge of textbooks as the main content of classroom teaching. For the need to contact the production practice or specific case analysis, can only rely on teachers' own knowledge reserve or find network resources. Third, the needs of enterprise innovation and development. As the terminal of knowledge transformation, the products produced by enterprises directly meet the needs of social and economic development, and are the most direct feedback of the strong demand for innovation and development. However, college students are in the age group of rich innovative thinking and dare to think and do. Only by combining the knowledge you have learned with enterprise engineering cases can they stimulate their innovative thinking.

3 The bottleneck problem existing in the implementation of innovative talent training mechanism combining industry, university and research

Through the above analysis, it is not difficult to find that the combination of industry, education and university with innovative talent training mechanism has a promoting effect on social development and the rapid growth of enterprises, universities and research institutes. However, there are many obstacles and pain points in the actual process of the teaching of colleges and universities.

(1) The teaching and training program does not match the training mechanism of industry-university-research talents. On the one hand, it is hoped to improve students' learning innovation and knowledge application ability through the method of industry-university-research training; on the other hand, there is no specific implementation

method and measures in the teaching training program, which can only provide students with limited engineering application cases with their own knowledge reserve or personal work experience[6].

(2) There is a break point between the enterprise technology demand and the process of university talent training. According to the objective factors such as specific disciplines, training levels and teachers, the talent training of colleges and universities develops a training mode for students in relevant majors. In the specific training process and the formulation of training mode, the organic integration of industry, university and research.

(3) The talent training of industry-, university-research institutes lacks a stable enterprise platform support. In the process of talent training, the theoretical teaching part can be completed in the classroom, but the practical teaching process needs close cooperation from enterprises. Whether students can provide a stable enterprise teaching platform is crucial.

(4) Teachers lack motivation for research. There is a lack of effective incentive mechanism in a series of systems such as the professional title evaluation and teacher strength of college teachers. Many scientific research projects lack clear research direction and objectives, less investment funds, it is difficult to achieve obvious results in a short period of time.

(5) Lack of school experience. The combination of production, university and research requires schools to occupy a more important position in the industry, but the transformation of enterprises in most schools is not thorough enough, the relevant talents lack experience and quality, and lack of understanding of the market and the actual needs of enterprises.

In response to the above problems, more clear and unified norms should be formulated to strengthen the management, guidance and supervision of the combination of production, university and research. Enterprises should also pay close attention to and participate in teaching and research activities, and professional scholars should firmly establish market awareness, strengthen quality training, and improve global competitiveness.

4 Combining production, university and research to innovate the implementation of talent training mechanism

Through the analysis of the necessity and the bottleneck problems of the implementation of the mechanism, it can be seen that the implementation of the mechanism needs to consider multiple factors comprehensively and formulate detailed implementation paths, so as to give full play to the role of the mechanism.

The first is to innovate the teaching model and formulate matching training programs. There are great differences in management methods and teaching modes between the training mechanism of talents in production, university and research institutes and the current training mode of talents based on traditional theoretical teaching. To this end, it is necessary to formulate training programs that are compatible with the training mechanism of industry-university-research personnel. In particular, in the

training program, it is necessary to clarify the credit recognition and assessment methods of practical teaching. At the same time, teachers need to actively innovate teaching methods, and constantly explore teaching methods that are more suitable for the training mechanism of production, study and research in the teaching process.

Second, strengthen school-enterprise cooperation and innovate personnel training. We should actively expand the exchanges between schools and enterprises, strengthen the construction of teaching staff, and introduce practical experience and technical resources of enterprises. At the same time, enterprises should also move towards the direction of academic research, form a tripartite innovation system with industry experts and scientific research institutions, and improve production efficiency and innovation level. As an employer, the enterprise has an absolute say in the quality of talent training with the school. At the same time, enterprises have richer practical experience than universities on how to continuously improve the ability of college students to solve engineering problems.

Third, improve teachers' ability of scientific research and innovation, and improve the quality of classroom practice teaching. Teachers play a vital role in the process of students learning theoretical knowledge and solving engineering problems. Compared with the traditional theory teaching-based talent training mode, colleges and universities pay more attention to the cultivation of engineering practical ability and the ability to analyze and solve problems. This puts forward higher requirements on the comprehensive ability of teachers, who not only need to be able to explain theoretical knowledge, but also need to master how to use theoretical knowledge to solve engineering problems. Therefore, colleges and universities need to enhance teachers' ability of scientific research and innovation in a targeted way. On the one hand, teachers can be encouraged to take temporary jobs in enterprises and convert their own engineering practice experience into real cases of classroom teaching, so as to improve the quality of classroom teaching. On the other hand, teachers are encouraged to actively participate in related projects of scientific research teams, exercise their ability to analyze and solve problems in scientific research work, and lay practical experience for better development of industry-university-research personnel training mode.

The fourth is to optimize the classroom teaching content and improve the personnel training mechanism of production, university and research. The talent training mechanism based on traditional classroom theory teaching mainly focuses on textbook theory teaching. Combining production, university and research with innovative talent training mechanism, it is necessary to highlight the cultivation of students' ability to analyze and solve problems. Therefore, in the curriculum of students, it is possible to set up relevant engineering case analysis practice courses based on specific majors. Meanwhile, it is suggested to adopt the teaching mode of student-oriented and teacher-assisted in this subject. Through specific engineering cases, students can be grouped into research teams and report their team's solutions in the form of case analysis. Through case analysis, students can not only develop their understanding and application ability of theoretical knowledge, but also develop their team spirit of unity and cooperation. In addition, the assessment of engineering case analysis practice course can be different from the traditional closed book examination, using case analysis report, course paper and other methods.

5 Conclusions

The paper makes a systematic analysis of the problems existing in the process of talent innovation training under the background of the current production, university and research integration training mode: the mismatch between the teaching training program and the production, university and research personnel training mechanism, the breakpoint between the enterprise's technical needs and the university's talent training process, the lack of stable enterprise platform support for the production, university and research personnel training, and the lack of teachers' research motivation. At the same time, the paper combines the necessity and urgency of the implementation of the training mechanism of innovative talents, puts forward the innovative teaching model, and formulates the matching training plan; Strengthen school-enterprise cooperation and cultivate innovative talents; Improve teachers' ability of scientific research and innovation, improve the quality of classroom practice teaching; This paper discusses four ways to innovate the talent training mechanism, including optimizing the classroom teaching content and perfecting the talent training mechanism of production, university and research, from two aspects of theory and practice.

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