

Research on Industry-University-Research Collaborative Training Model for Undergraduate Applied Talents

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Abstract: The cooperation of industry, University and research in training applied undergraduate talents is an advanced talent training mechanism, which emphasizes the coordination of multiple organizations in order to promote the birth of Applied Undergraduate talents. Starting from the connotation of the mode of Industry-University-Research collaborative training, this paper analyses the existing problems of the current undergraduate application-oriented talents' industry-university-research collaborative training, and puts forward corresponding solutions.

1. Introduction

With the rapid development of science and technology and the leap-forward development of discipline construction, enterprises are increasingly demanding for applied talents [1]. However, from the employment situation of graduates, the employment situation of applied talents is not ideal, and the actual knowledge and skills acquired by students are not consistent with the needs of enterprises. Especially, the engineering comprehensive ability and innovative ability of graduates can not meet the requirements of employers [2]. Therefore, reforming the training plan of applied talents, enhancing students' practical and innovative abilities, and training high-level technical talents to meet local needs have become an urgent problem to be solved in the development of mechanical and electrical specialty in Colleges and universities. Constructing an efficient and cooperative application-oriented talent training mode based on universities, research institutions and enterprises is the core and key to improve the quality of talent training under industry-university-research cooperative training mode.

2. The Cooperation Connotation of Industry-University-Research Cooperative System

Industry-university-research cooperative education mode, that is, colleges and universities, production enterprises and research institutes cooperate closely, give full play to the differences of the tripartite educational environment, tap the advantages of tripartite educational resources, and jointly build industry-university-research comprehensive practical teaching system [3].

2.1. Industry-university-research cooperation model content development

industry-university-research cooperation originated in the United States in the early 20th century. It entered the boom stage in the 1970s and began to be widely used [4]. However, it is found that the initial performance characteristics of industry-university-research cooperation are mainly obtained by enterprises through universities and research institutes. A large number of high-level technical support has gained advantages in production, operation and market competition, and cooperation with industry-university-research has not played an important role in the process of personnel training in Colleges and universities. It can be said that industry-university-research collaboration system results are not balanced. Welfare is a unilateral benefit, focusing on the production process.

In industry-university-research cooperation process, only effective knowledge sharing and communication between partners can realize knowledge coupling and achieve the goal of cooperation. Barrier-free dissemination of information and knowledge among partners is the key to

successful cooperation. People with different backgrounds must cooperate and communicate effectively to change the past university sales model in order to realize knowledge and innovation. University research should pay more attention to the practicability of knowledge. It is guided by practical problems. Businesses no longer take profit as their sole purpose. They pay more attention to improving scientific and cultural quality and application ability. The coupling of Industry-Research heterogeneity will promote the economy. Accelerate development [5]. The power of knowledge coupling in industry-university-research cooperation mainly comes from the following aspects, as shown in Figure 1:

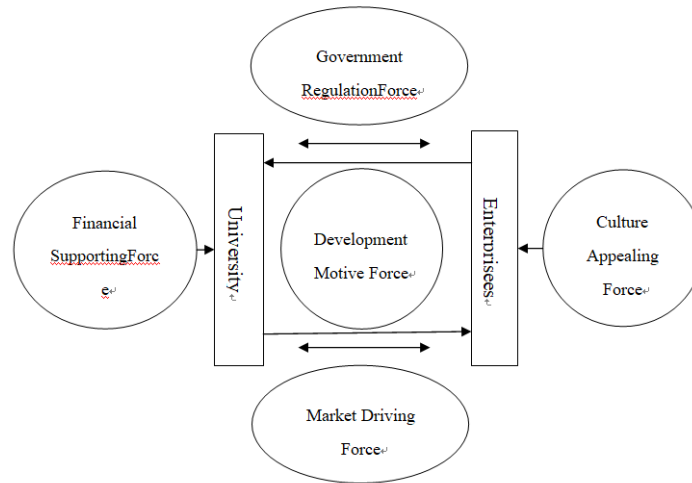


Fig.1. The dynamic model of knowledge coupling in industry-university-research cooperation

Since 1990s, industry-university-research cooperation mode has been gradually implemented in China, and has been applied more and more in the field of higher education in China, especially in the training of higher talents, that is, cooperative education is an important part of industry-university-research cooperation. In the practice and exploration of industry-university-research's in-depth cooperation, theoretical knowledge and practical application have been effectively combined, teaching environment and teaching resources have been optimized and integrated [6], mutually beneficial and gradually realized.

2.2. The positive role of industry-university-research cooperation model

Under the cooperation and interaction, enterprises can obtain the scientific research achievements of schools as a priority, transform them into technologies that can promote production, enhance their own interests and promote local economic development [7]. With the help of school teachers, we will enter the company through training and lectures, and pass on the latest management concepts and methods to the company management, in order to further enhance the company's soft power.

Although school-enterprise linkages are conducive to the development of enterprises, they also provide more practical and scientific research opportunities for University teachers [8]. Improve the teaching and scientific research level of the teachers as a whole, and lay a solid foundation for the improvement of the school level. industry-university-research cooperates to build a resource integration platform, effectively combines teaching and practice, research and development and application, and promotes the integration of industry, University and research.

As an output unit of talents, colleges and universities take talent training as the leading factor and market as the core, provide guidance and practice places based on production, promote research, provide their own research functions and provide high-level technical support [9]. Through the high-frequency interaction of elements, we can promote deep-seated cooperation, reform the educational model, improve the educational conditions, and train high-quality applied innovative talents to adapt to the current new situation.

3. Problems Existing in the Current Training Model of Applied Talents

In reality, there are still many problems in industry-university-research collaborative training mode for applied talents, mainly in the following aspects:

3.1. Insufficient docking between colleges and universities and society, and disconnection between teaching and social application

(1) The concept of industry-university-research enterprise co-cultivating applied talents is relatively backward, which directly affects the lack of motivation for enterprises to actively participate in the collaborative training of Applied Talents in Colleges and universities. The school-enterprise cooperation training environment for applied talents needs to be further improved.

(2) College students themselves lack the subjective willingness and liquidity to connect with enterprises on the first line, and can not obtain the frontier information and dynamics of the development of literary and creative industries.

(3) Colleges and universities only rely on limited internship and graduation internship resources to meet the needs of students who enter the cultural and creative industries after graduation.

3.2. The curriculum of colleges and universities is scattered and can not achieve resource sharing.

The traditional talent training mode is not conducive to the training of Applied Talents in professional settings and teaching forms. Firstly, in terms of specialty setting, colleges and universities overemphasize the setting of courses according to specialty categories. Students' limited choice is not conducive to broadening their horizons and enriching their knowledge. Secondly, in the form of teaching, the teaching methods in Colleges and universities are still based on classroom teaching, focusing on the inculcation of theoretical knowledge [10]. Theory is higher than practice, and it is easy to ignore students' individuality and differences, and lack students' ability to work, innovate and innovate. Cultivate comprehensive qualities such as spirit.

3.3. Insufficient construction of teachers

Colleges and universities are places where talent is exported. They can continuously inject fresh blood into industry-university-research cooperation. The leaders of universities are teachers. Teachers' professional level directly affects the actual level of personnel training. At present, teaching staff are more structured in academic structure and Title structure, ignoring the proportion of teachers in practice, which leads to the lack of scientificity and rationality of teachers in industry-university-research collaborative innovation talent training mode. With the promotion of industry-university-research collaborative innovation platform, the structure of many university teaching staff is also actively adjusted. However, due to the prohibition of traditional teaching concepts, most teachers still devote more energy to the theoretical field. The combination of innovative talents training ideas with institutions and enterprises is relatively low, which leads to the low efficiency of collaborative training of industry-university-research innovative talents in Colleges and universities.

3.4. Industry-university-research tripartite selection is not optimal

Industry-university-research cooperates to train applied talents, requiring industries, schools and research institutions to cooperate with each other and give full play to their respective advantages [11]. In the real society, the three parties have their own choices in choosing, and there exists the problem of optimality of mutual election. If the three parties choose the best goal, then they have enough enthusiasm to train the best application-oriented talents; on the contrary, if the three parties do not choose their own best goal, it may weaken the joint training of application-oriented talents. As a result, the effectiveness of applied talent training has been greatly reduced.

3.5. Insufficient financial support for the training of applied talents

Consideration on the Cooperative Training Model for Applied Talents industry-university-research at present, with the deepening promotion of

industry-university-research cooperative innovation by the state, the support for the training of applied talents is gradually increasing, but the financial support is still insufficient. On the one hand, the insufficient support of national finance and local government funds for the cultivation of Applied Talents in Colleges and universities leads to the formation of the talent team; on the other hand, enterprises pursue short-term interests and invest insufficiently in the cultivation of applied talents. Recognize the important role of personnel training in the innovation and development of enterprises.

4. Solutions to the Problems in the Training Model of Applied Talents

As China enters a new era, the strength of talent cultivation is constantly increasing, and the enrollment rate of universities has entered an expanding stage, which has played an important role in improving China's cultural soft power and social human resources [12]. However, with the rapid development of society, industry-university-research cooperation personnel training system needs to be improved and improved.

Through the open mode of running schools, universities include enterprises and research institutions. Under the guidance and guidance of the government, we should organically combine social resources, give full play to their respective advantages, ultimately achieve technological innovation, transform achievements, and promote the mutual benefit of applied talents. Win-win situation. Subjects are not simply gathered together. Universities, enterprises, research institutions and governments all play different roles.

4.1. Schools and enterprises jointly formulate personnel training programs, docking post standards

(1) Colleges and universities are the main force in training applied talents. University education is an important combination of the first batch of scientific and technological resources and applied talent resources. It is also the best entry point to implement collaborative training of applied talents. Undergraduate level is an important stage for students to learn professional knowledge and broaden their horizons. Therefore, colleges and universities should actively give full play to the important role of collaborative training, highlighting the cultivation of innovative ability of applied talents. Through the investigation of key enterprises, colleges and universities can understand and clarify the needs of employers and enterprises, especially the knowledge structure, ability and quality of students, and provide enough schools and enterprises to cultivate applied talents. Foundation and guarantee.

(2) Jointly formulate a talent training plan. Guided by the needs of enterprises, supplemented by the basic principles of university development and enterprise participation, we jointly formulate a training program for applied talents. Major enterprises innovate in market demand and application direction, aiming at achieving technological innovation and knowledge export, and achieving breakthrough progress. Taking enterprises as the main body and training application-oriented talents in coordination can ensure technological innovation, adhere to market-oriented, integrate industry-university-research's power effectively and quickly, and accelerate the industrialization of technological innovation achievements. Collaborative training of Applied Talents in schools and enterprises also requires enterprises to participate in all aspects of the training of applied talents, to promote the close connection and integration between applied talents and enterprises, and to enable enterprises to give full play to the role of training applied talents. (3) Increase the proportion of practical courses, provide guarantee for the training of applied talents at all levels, and jointly establish practical bases for the training of applied talents.

4.2. Cooperate to establish an innovative system of cooperative training practice teaching

(1) Schools and enterprises participate in curriculum development, adjust curriculum structure, increase innovation, enrich curriculum resources, and meet the overall requirements of professional competence.

(2) Cooperate to share out-of-school training bases and provide students with comprehensive

internship bases. Different training modes can be arranged for students at different stages. It can organize junior students to carry out professional practice and vacation practice in enterprises, and organize graduates to enter garment enterprises for post matching, graduation practice and graduation design.

(3) Cooperation with research institutes and research institutes. In the process of collaborative training of applied talents, through the cooperation of universities, enterprises and scientific research, scientific and technological innovation achievements are effectively transformed according to market demand. The transformation of these achievements can improve the development capacity of research institutions and promote social progress. In the process of participating in the cooperative research and development of applied talents, research institutions can focus on market-oriented issues through in-depth cooperation with enterprises, aiming at reality, guiding and training applied talents. In the middle, we should find problems in time, solve problems, further improve the conversion rate of scientific and technological achievements, and open up our own high-level research space.

4.3. Strengthen the teachers'team and improve the qualities of double teachers and double abilities

Teachers are an important quality assurance for industry-university-research enterprises to train applied talents together. We should constantly improve the qualification requirements and training methods of double-qualified teachers, and comprehensively improve the professional theory and practice level of teachers. Colleges and universities can choose different levels of professional teachers to study abroad in batches to provide high-quality teachers for training high-quality applied talents.

4.4. Establishing industry-university-research collaborative talent training system with transparent information

The collaborative training of industry-university-research applied talents needs to establish a transparent information industry-university-research collaborative talents training system. In the three different fields of higher education, enterprises and research institutions, we should jointly establish an information network for training applied talents. The basic information of achievements, strength and development needs in each direction should be in this information transparent network. It is reflected in the middle and provides the realization of accurate matching and mutual selection of the three parties.

4.5. Increase fund-raising efforts

Efforts should be made to raise funds for the training of applied talents. Specifically, we can increase financing from the following aspects: first, we should urge the national financial funds to increase the financial support for the application of innovative talents; second, we should mobilize enterprises. The third is to strengthen publicity and social donation.

5. Conclusion

Talents are strategic resources to realize national rejuvenation and win international competition. The cultivation of applied talents will be further promoted by solving such problems as the advantages of mutual selection between industry, University and research, the authenticity of personnel training and the lack of funds. Strengthening the research on the cooperative training mode of applied talents will also help us to cultivate more applied and innovative talents and provide more talents for the development of national society.

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