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Exploration of talent cultivation reform in pharmaceutical specialty under the background of first-class professional construction

Beibei Hu, Zhongqiu Li, Yongshuai Jing*

College of Chemical and Pharmaceutical Engineering, Hebei University of Science and Technology, Shijiazhuang, China
**Corresponding author*

Abstract: *In recent years, with the launch of the "Double Ten Thousand Plan" for the construction of first-class undergraduate courses, local colleges and universities should actively meet the challenges of the new era's diverse demand for talents, by adapting to national development strategies and local industrial development needs. And the construction of first-class majors is the foundation of the construction of "first-class courses". This article introduces some reform measures and experiences made in the construction of the pharmaceutical preparation specialty in the university, such as deepening the comprehensive reform of the specialty, building the teaching team and grassroots teaching organizations, and building the teaching quality assurance system. It also gives in-depth consideration to building an application-oriented first-class specialty.*

Keywords: *Talent Cultivation Reform, Pharmaceutical Specialty, First-class Professional Construction*

1. Introduction

In recent years, with the launch of the "Double Ten Thousand Plan" for the construction of first-class undergraduate courses, local colleges and universities should actively meet the challenges of the new era's diverse demand for talent. They should actively adapt to the national development strategy and local industrial development needs, by adhering to the "40 Principles of Higher Education in the New Era" issued by the Ministry of Education. The "Double Ten Thousand Plan" professional construction strategy was advocated by the government. Thus it is essential to implement the fundamental task of cultivating morality and cultivating talents. To further deepen the supply side reform of undergraduate majors, it is urgent to build national first-class majors. Currently, local colleges and universities have done many reforms to suit the educational policy, such as focusing on local industry advantages, clarifying their school positioning, inheriting their characteristics and advantages, updating their talent cultivation concepts, creating a first-class platform, deepening education and teaching reform, pooling resources for collaborative education, improving teaching quality assurance, and actively promoting international exchanges and cooperation, and conducting in-depth thinking on building an application-oriented first-class specialty.

As a key local university, based on its historical and traditional advantages and geographical location advantages, our school strengthens the top-level design of professional layout. It improves the dynamic adjustment mechanism of specialties, cultivates characteristic specialties, and strengthens advantageous specialties. With the core goal of improving the quality of talent cultivation and taking professional certification as the construction carrier, we will implement the dual engine drive of characteristic and connotation. We will strive to build a first-class specialty in local undergraduate universities and cultivate more application-oriented talents that meet the needs of local economic construction, making positive contributions to serving enterprises and local economic and social development[1-3].

The educational philosophy of the pharmaceutical major in our school is committed to the comprehensive development of human beings, serving regional economic construction and social progress. It is positioned to cultivate and serve the development of medical and health undertakings in Hebei Province and surrounding regions. Students have innovative awareness, practical ability, and good professional ethics and norms. They can be engaged in research, technical innovation, development, and production area of fields of pharmaceutical preparation design and application, taking the job of quality control, preparation, and production. In this major, with the core goal of improving the quality of talent

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cultivation and taking professional certification as the construction carrier, we will implement the dual engine drive of characteristic and connotation, strive to build a first-class specialty in local undergraduate universities, cultivate more application-oriented talents that meet the needs of local economic construction, and make positive contributions to serving enterprises and local economic and social development.

2. Main measures and achievements of deepening comprehensive professional reform

Guided by the OBE concept, our major improve training programs, adapting to new pharmaceutical formats. According to the school's educational purpose and positioning, we adhere to the principle of establishing morality and cultivating talents and regularly revise the training plan by the OBE concept.

Focus on industry development, we optimize the curriculum system to strengthen curriculum construction. Adapting to the needs of the industrial chain, we have established a diversified curriculum system that supports the "Five in One" talent cultivation concept, striving to create high-quality courses. There is a national bilingual teaching demonstration course "Spectral Analysis", a national high-quality course "Drug Synthesis Reaction", a provincial first-class undergraduate course "Principles of Chemical Engineering", a provincial high-quality resource-sharing course "Experiments on Principles of Chemical Engineering", a provincial high-quality course "Industrial Pharmacy", a school-level offline first-class undergraduate course "Industrial Pharmacy", and two excellent online teaching courses. As the editor-in-chief or deputy editor-in-chief, he has published textbooks such as "Pharmacy", "Experimental Tutorial of Pharmacy", "Pharmaceutical Preparation Engineering", "Experimental Tutorial of Pharmaceutical Botany", "Medical Information Retrieval and Application", etc. As an editorial board member, the teachers in our department have published textbooks such as "Industrial Pharmaceutics", "Pharmaceutical Analysis", and "Experimental Course in Pharmaceutical Chemistry".

Strengthen the reform of teaching methods, we promote the ideological and political construction of professional courses, thus constructing characteristic teaching models. We build a "1+n" teaching model, with "1" main teaching platform and "n" other platforms to jointly carry out course teaching. Otherwise, we adopt multiple teaching methods such as case-based, discussion-based, and blended teaching methods. Experts and foreign teachers were invited to participate in the teaching. We intend to teach relevant knowledge from multiple perspectives and in multiple ways to enable students to learn independently with interest and enthusiasm. A new curriculum that goes hand in hand with ideological and political theory courses. Thus we wish to further promote the full coverage of professional courses in ideological and political construction.

Strengthen process management, we introduce high-quality resources, and cultivate students' international perspectives. President of the United States Pharmaceutical Technology Co., Ltd., was invited to participate in the lecture on "Industrial Pharmaceutics". The former president of thr Hebei Provincial institute for drug control was invited to lecture on "Pharmaceutical Management and Regulations". The general manager of the environmental protection department of North China Pharmaceutical Company was invited to lecture on "Pharmaceutical Preparation Engineering", which was widely praised by students[4-5].

We build a characteristic practical teaching system, intending to integrate talent cultivation with the pharmaceutical industry closely. Centering on cultivating students' innovative spirit and practical ability, we will build a practical teaching system that gradually promotes the process of basic knowledge, operational skills, comprehensive training, product research, and development. A practical teaching system of experiment, training, practice, and innovation can complement each other. It has formed the main line of facing the needs of the pharmaceutical industry, cultivating students' innovative spirit and strong practical ability. Technology and engineering are integrated, and science and engineering are integrated. Three platforms were built, thus internal practice platform, external practice platform, and industry-university-research innovation platform. A practical teaching model that combines in-class and extracurricular, in-school and extracurricular, hands-on innovation and virtual reality were built. We have established national and provincial experimental teaching demonstration centers, which have played a good radiation and demonstration role in similar universities nationwide.

3. Main ideas and measures for promoting professional construction and reform in the next step

Next, we will adhere to establishing morality and cultivating people, strengthening moral education work and management. The education in patriotism, collectivism, and socialism will carry out deeply

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and effectively. We will formulate and improve an assessment and evaluation system for moral education and a comprehensive quality evaluation system for students. We will continue to establish morality and cultivate people, and cultivate socialist builders and successors with comprehensive development of morality, intelligence, physique, beauty, and labor.

Secondly, guided by the needs of industrial enterprises, we will continuously improve the ability to serve regional economic construction and social progress. Based on the economic construction of the Beijing-Tianjin-Hebei region, the research results of industry experts, employers, well-known alumni, and graduates, as well as the characteristics of the school, we will strengthen the construction of first-class majors, improve professional construction plans, focus on connotation based development, and improve professional construction goals and development paths.

Thirdly, we will improve professional training programs and talent training models to improve student training quality. Further, we will improve the training objectives, graduation requirements, curriculum system, and curriculum outline. We invite industry and enterprise experts to teach professional courses. We invite foreign university teachers to conduct academic reports. Through introducing high-quality educational resources from abroad, strengthening international exchanges and cooperation to enhance students' international vision. Teachers will timely reflect the new technologies, materials, and equipment of domestic and foreign pharmaceutical enterprises into the curriculum, and strengthen the distinctive characteristics of pharmaceutical talent cultivation[6-7].

Fourthly, we will strengthen the construction of the teaching team and its comprehensive strength. Within three years, 2-3 high-level talents will be introduced. 10-15 teachers will be selected to participate in domestic and foreign exchange training. 2-4 key teachers will be selected to visit high-level institutions abroad for exchange. And 3-5 outstanding domestic and foreign teachers or leading pharmaceutical enterprise experts will be hired to teach undergraduate courses.

Fifthly, education should follow the standards of “high-level, innovative, and challenging” to construct courses and promote the reform of teaching methods and models. Using online teaching resources such as Muke and Aike, we will intensify efforts to promote the reform and construction of online courses, hybrid teaching, flipped classes, and other teaching modes. The academic challenges will be reasonably enhanced, and the depth of courses were gradually broadened. The construction of “golden courses” such as the courses in Industrial Pharmacy, Pharmaceutical Botany and Pharmacology, and Biopharmaceutics and Pharmacokinetics will be promoted. Furthermore, we will promote the full coverage of the ideological and political construction of professional courses.

Sixthly, we will construct the schools and enterprises cooperating, to improve the distinctive practical teaching system and platform. In the next work, we will highlight the characteristics of the pharmaceutical industry, and improve the experimental teaching system of pharmaceutical preparation, quality control, virtual simulation, and multidisciplinary integration. Moreover, 2-3 virtual simulation platforms and 2-3 practical teaching bases will be built, intending to organically integrate enterprise production, personnel training, project research and development, and talent cultivation. We wish to form a talent cultivation community that complements each other's advantages, and shares achievements, and benefits.

4. Discussion and suggestions

The characteristics of our reform measures include (1) rational positioning and scientific formulation of professional development plans; (2) highlighting advantages and cultivating distinctive majors; (3) strengthening connotation and connection with industry optimization curriculum teaching; (4) innovating mechanisms and take multiple measures to improve resource protection. The innovation points include: (1) building an online and offline hybrid practical teaching system, closely integrating talent cultivation with the pharmaceutical industry; (2) introducing high-quality teaching resources to cultivate students' international perspectives; (3) integrating professional construction, scientific research, and education and teaching organically, nurturing teaching through scientific research, promoting scientific research through teaching, and jointly improving the level of professional construction.

The construction of first-class majors is the foundation of first-class subjects. From the perspective of the basic functions of universities, the fundamental task is talent cultivation. And talent cultivation needs to be implemented in the major ultimately. Therefore, doing a good job in specialty construction can promote discipline in construction. Only first-class majors can cultivate outstanding talents, provide fresh power for the development of scientific research, society, and industry, and achieve and promote

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discipline development.

The construction of first-class majors is an important manifestation of enhancing the core competitiveness of schools and students. Professional construction is the optimization and combination of disciplinary resources. With social progress and the continuous refinement and classification of disciplines, many intersecting majors have emerged among novel fields and majors. In the process of building and creating first-class majors, universities are bound to optimize their disciplinary systems and resources, achieve and promote innovation, breakthroughs, and development in disciplinary construction, and enhance the overall level of running schools and the comprehensive competitiveness of universities. Therefore, building a first-class undergraduate education is an important foundation for the construction of double first-class. And the construction of a first-class undergraduate major is an inevitable choice for building a first-class undergraduate education.

5. Conclusion

To sum up, the rapid development of China's pharmaceutical industry has led to a strong demand for pharmaceutical talents from pharmaceutical industry enterprises, which has brought opportunities for the construction and development of pharmaceutical majors. The construction of the pharmaceutical innovation talent cultivation system has important reference significance and promotion value for the construction of "first-class majors" in other majors in our university and other universities.

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