Polymer chemistry course group teaching team construction

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Abstract: With the deepening of education and teaching reform, the teaching team that undertakes the main body of education is particularly important. Taking the polymer chemistry course group teaching team of Hubei University of Automotive Industry as an example, this paper explores the practice and experience of teaching team construction from the aspects of mechanism, course group system, teaching resources, course group teaching, practice teaching, teacher training, teaching research, etc., hoping to provide reference for the organization model of high-quality talent training in universities.

Key words: Polymer chemistry; Course group; Teaching team; Talent training; Teaching reform

Introduction

In 2018, the Ministry of Education issued the Opinions on Accelerating the Construction of High-level Undergraduate Education and Comprehensively Improving the Ability of Personnel Training (Article 40 of Higher Education in the New Era), requiring all higher education institutions in the country to establish and improve diversified grass-roots educational institutions and teaching organizations, and carry out in-depth teacher training, teaching and research activities to improve education in the field of modern technology and education The level of in-depth application in teaching. With the continuous development of higher education, the institutional type of grassroots educational institutions and school organizations has been included in the educational archives again after a period of silence. It can be seen that the state has realized that the organizational form based on grassroots teaching organizations and teaching teams is an effective way to improve the level of education and teaching and the quality of personnel training.

With famous teachers and professors as the leader, professors and associate professors as the main body, departments, laboratories, practice and training bases and engineering centers as the construction units, and majors or course groups (groups) as the construction platforms, the teaching teams have been formed during years of teaching reform and practice. They have clear development goals and good cooperation spirit. It has a teaching portfolio with reasonable professional titles and knowledge structure and a mix of old, middle and young people. Its purpose is to unite people and carry out teaching reform under the guidance of the same teaching ideas, encourage curriculum research and the exchange of classroom teaching experience, further develop educational resources, improve educational scientific research, strengthen teaching management, effectively improve the quality of education, further improve classroom group construction and curriculum construction, cultivate outstanding talents with innovative spirit and practical consciousness, and jointly promote the cause of education The combination of old, middle and young people, give play to the functions of transmission, help and belt, and cultivate a sustainable development of the education team.

1. Polymer chemistry course group teaching team setting overview

The course group is a systematic knowledge group formed by synthesizing some knowledge groups that have logical connections in knowledge, technology, problems and other fields in order to establish a cognitive structure with the same implementation goal. Each course group is closely connected, multiplies and penetrates in the teaching content, and is highly complementary, with the advantages of good integrity and strong stability, which can greatly improve the quality of the course group and the professional ability of the students. China Polymer Chemical Course Group Education Group is guided by “concept guidance, initiative innovation, integration of knowledge and practice”, supported by national and provincial key disciplines (Materials science and engineering) and provincial key experimental teaching Demonstration Center of Materials Science and Engineering, and aims to serve mechanical and material majors. Set teaching, scientific research and social service in one of the long-term adhere to the teaching line of the team of teachers set up. The course group teaching of the team is mainly for “three levels” : cognitive chemistry (students in the whole school), selective chemistry (students majoring in machinery and near machinery), and applied chemistry (students majoring in materials). In the process of personnel training, the curriculum group makes full use of the regional advantages of the automobile industry and the South-to-North Water Transfer water source protection area, insists on the cooperation education of production, university and research, and strengthens the training of practical engineering ability, forming the distinctive characteristics of training students familiar with the modern production process, strong engineering innovation ability, high comprehensive quality, strong adaptability to enterprises and quick at work.

2. Main measures of team building

(1) Promote long-term stability of team building with mechanism building as the guarantee

The team has established a curriculum group construction and operation guarantee mechanism and system with the unified coordination of responsibility, right and benefit to ensure the long-term and efficient operation of team work: The implementation of team building target responsibility system. The combination of external training and internal training. Organize group discussion activities regularly to strengthen the collective consciousness of team members. Encourage team members to improve their teaching ability and level by participating in the construction of course group system and resources, the application and practice of teaching research projects, the

integration and condensation of teaching results, and the sharing and exchange of teaching experience. The course group construction and project research funds give priority to publishing teaching research papers, participating in academic conferences, declaring various teaching research topics and achievements awards.

(2) Improve the course group system, integrate and reconstruct the teaching content

Strengthen the communication and coordination between different course groups, break the limitation of the original four chemistry, namely "Inorganic Chemistry", "Physical chemistry", "polymer chemistry" and "Organic Chemistry", combine modern production practice and realistic environment requirements, according to the "broad foundation, strong practice, theoretical teaching and practical teaching, professional education and quality development, Under the principle of combining commonness improvement with personality development, the overlapping parts of the content are deleted, updated and integrated, the principle, structure and formula deduction are simplified, the application of principles and methods is emphasized, and the overall design of the new polymer chemistry teaching system which combines tradition and modernity, science and technology, and theory and application is emphasized. The new course group system has greatly improved the teaching effect.

(3) With the support of teaching resources and platforms, promote the construction of course groups to keep pace with The Times

① Construction of teaching materials. ② Video resources construction. ③ Question bank construction. ④ online course group construction. ⑤ Practice platform construction. The course group belongs to the School of Materials Science and Engineering, and all members of the teaching team actively participate in the construction of various teaching platforms of the school, which have been approved by the national Engineering Education Practice Center, Hubei Key Experimental Demonstration Teaching Center of Materials Science and Engineering, Hubei University Student Practice and Training Base and other teaching platforms at or above the provincial level. These platforms have provided strong support for the construction and reform of the course group.

(4) Implement graded and stratified teaching, innovate teaching methods, and teach students according to their aptitude

First of all, the course group team sets up courses such as Chemistry and Contemporary Life, College Chemistry, Engineering Chemistry, General Chemistry and College Chemistry Experiment for students of different majors and levels. These course groups have different learning requirements (general education and professional education). The curriculum group focuses on selecting modular teaching content according to different students' objects and implementing individualized teaching. Secondly, the implementation of teaching content and teaching methods of the "five integration". Close contact with the actual needs of industry enterprises, increase the opportunities for students to practice inside and outside the school, implement the integration of teaching methods, to a certain extent to overcome the disconnect between school education and social practice, strengthen the cultivation of students' engineering practice and innovation ability. Third, reform the assessment and evaluation mode. The traditional lifelong assessment based on the final exam should be replaced by an assessment model that attaches equal importance to the learning process and learning results. Among them, the learning process includes chapter tests, comprehensive homework, literature review, course group papers, class speeches, group cooperation, class discussion, extracurricular innovative activities, experimental operation, etc. The learning results include mid-term and final exams, study notes, experiment reports, etc. According to the nature of the course group, teachers can choose any assessment items that can correctly test students' learning. The assessment mode that attaches equal importance to the learning process and the learning result can effectively achieve the goal of the course group and cultivate the students' independent learning ability.

(5) Reform the experiment and practice teaching, and emphasize the cultivation of practical application ability

First of all, starting from the basic laws of chemical experiment teaching, we summarized the four types of practical polymer physical chemistry experiments (inorganic chemistry experiments, analytical chemistry experiments, organic chemistry experiments, physical chemistry experiments) and instrumental analysis experiments in Central China, and subdivided the experimental courses in the chemistry curriculum level. Formed a new practice curriculum system independent of the basic teaching group, that is, according to the three levels of "basic, comprehensive and exploratory" and according to the characteristics of each major set up "multi-module" practice curriculum system. Secondly, in the reform of experimental projects, consciously combine in-class experiments with extracurricular discipline competitions (integration of learning competitions), strengthen the training of experimental skills and comprehensive analysis, and cultivate students' engineering practice ability and innovation consciousness. Thirdly, the practical teaching project is closely combined with scientific research, and the cutting-edge chemical experiment project is innovatively designed and implemented, which effectively guarantees the common promotion of basic education, applied learning and professional growth. Fourthly, the school practice platform is combined with the enterprise practice platform, the background platform of the actual project is integrated with the enterprise scene teaching platform, the communication between the factory and the school, the interaction of big data, and the integration of production and education, so that the students can get the most intuitive feeling in a good practice atmosphere. Fifth, the implementation of chemical laboratory 5S management, around the arrangement, rectification, cleaning, cleaning, quality and other aspects of the comprehensive implementation of management education, environmental education, service education education concept, effectively improve the safety of the laboratory, strengthen the standardized management of the laboratory, improve the laboratory education environment.

(6) To lead the new with the old, strengthen the construction of teachers

In order to strengthen the follow-up strength building of the team and improve the professional ability of young teachers, corresponding systems and plans have been specially formulated, and comprehensive and systematic training measures have been implemented: The establishment of "double tutorial system" as a training mechanism for young teachers. Implement the "internal training and external training" plan to improve the overall level of young teachers. Establish "weekly discussion" and "monthly report" exchange system, learn

from each other and learn from each other. Adhere to the “practice in the factory” system to train young teachers’ engineering practice ability. Promote teaching by competition, promote learning by competition, and enhance the teaching ability of young teachers. Support and guide the young teachers in the team to participate in various teaching competitions at the school level and at the provincial level, so that young teachers can fully show their teaching ability in the competition, improve the ability of classroom interaction, further polish the content and methods, and improve their comprehensive literacy.

(7) To promote teaching through research, and to promote the improvement of teaching quality

Since its establishment, the teaching team of polymer Chemistry course group has been adhering to the principle of “teaching and research, promoting teaching by research, and researching in teaching”, promoting teaching by scientific research, accumulating scientific research materials in teaching, and better realizing the transformation of scientific research results into teaching through a variety of ways. The specific performance is as follows: Scientific research serves teaching and improves teaching level. Scientific research is transformed into teaching materials, so that scientific research results can exert extensive influence. Scientific research is decomposed into graduation design to cultivate students’ practical ability. 4. Transform scientific research into innovative projects to enhance students’ scientific research ability and innovation ability.

3. Concluding Remarks

With the development of subject specialties and emerging technologies, faculty collaboration across departments, disciplines, specialties, and course groups will become the norm. Teaching team building makes up for the shortcomings of the “individual combat” education model, and can draw on the strengths of others to form complementary advantages, which is of great significance for improving the quality of education and teaching. Building a teaching team with tacit cooperation and long-term stability needs a comprehensive and long-term process, and it also needs to provide support from the aspects of system and mechanism guarantee, reform and innovation motivation, personnel and financial support. In the future, the polymer chemistry course group teaching team will actively adapt to the needs of local economic development for talent training, further improve the team cooperation mechanism, and deepen the reform of the course group teaching content; Further promote the reform of classroom teaching methods; Further do a good job in teaching research and classroom teaching experience exchange, explore excellent educational resources; On the basis of the organic integration of old, middle and young people with the help of teaching, we will improve the construction of the teaching team and enhance the overall educational ability of the team.

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