

Teaching Reform Exploration of Ideological and Political of Analytical Chemistry Experiment Course in Colleges and Universities

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Abstract: Under the background of the new era, “course ideology and politics” is a major topic that colleges and universities are currently concerned about. Analytical chemistry experiment is one of the compulsory practical courses of chemistry in colleges and universities. From the experimental preparation before class to the experimental operation in class and the discussion and analysis after class, the ideological and political education of the course is subtly integrated into each link of the experiment. Realize that the chemical experiment course and the ideological and political course go in the same direction, and effectively integrate the scientific research spirit of scientists, family and country beliefs and other content into the experimental course, so that students can establish a correct world outlook, outlook on life and values while learning knowledge, and cultivate the recognition of majors, improve the overall quality and innovative thinking of students, and ultimately achieve the fundamental task of educating morality and cultivating people.

Keywords: Analytical chemistry experiment; Course ideology and politics; Teaching reform

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1. Introduction

Analytical chemistry experiment is one of the basic experimental courses required for students majoring in chemistry and pharmacy in colleges and universities, and it focuses more on the combination of theory and practice. Through the study of experimental courses, students will be familiar with the basic knowledge of chemical experiments, master the basic operation skills of analytical chemistry experiments and the use of common instruments, and basically learn how to consult subject materials and design experiments by themselves, so as to cultivate students' scientific attitude of seeking truth from facts and independence, the ability to think, analyze, and solve problems and then, lay a solid foundation for students' future study and scientific research. In March 2019, General Secretary Xi Jinping delivered an important speech at the symposium of teachers of ideological and political theory courses in schools, pointing out that “to run ideological and political theory courses well, the most fundamental thing is to fully implement the party's educational policy, and run ideological and political theory courses well. Solve the fundamental problem of who to train, how to train people, and for whom to train people”, with special emphasis on “adhering to the unity of value and knowledge, and guiding values into knowledge transmission”^[1]. In response to General Secretary Xi Jinping's proposal at the National Conference on Ideological and Political Work in Colleges and Universities, “We must adhere to the central link of cultivating people with morality, put ideological and political work throughout the entire process of education and teaching, realize the whole process and all-round education, and strive to create a new situation in the development of higher education in our country”^[2].

2. Ideological and Political Analysis of Analytical Chemistry Experiment Course

Analytical chemistry experiment courses are natural courses, mainly emphasizing “objective laws” and “natural phenomena”, and it is generally difficult to integrate ideological and political elements in the traditional teaching process^[3-4]. In the actual implementation of curriculum ideology and politics, there are still various deviations in understanding and practice. For example, the concept of “curriculum ideology and politics” has not yet formed a consensus among college teachers. Teachers’ curriculum ideological and political ability needs to be improved. Political elements are still lacking, and the integration with the curriculum is not very good.

2.1 The ideological and political ability of teachers’ curriculum needs to be improved, and the ideological and political integration of the curriculum is not very good

The poor integration of the curriculum is mainly reflected in the fact that the teachers are only simply imitating the ideological and political elements at the current stage, and the ideological and political content of the curriculum is not well connected with the knowledge system taught, which makes the classroom content appear empty and the knowledge connection is not smooth. Teachers are usually only familiar with the subject system and professional knowledge structure, and are limited to ideological and political teaching in a scientific spirit.

2.2 The concept of curriculum ideology and politics has not yet formed a consensus among college teachers

The ideological and political ability of teachers needs to be improved, mainly because teachers lack the relevant ability to promote ideological and political courses, and do not know how to carry out ideological and political courses. Many college teachers believe that this is the task of ideological and political course teachers, resulting in the independence of professional course teachers and ideological and political course teachers in the process of educating students, resulting in insufficient joint efforts in the construction of “course ideological and political”^[5]. In addition, due to the limitation of course hours and the current evaluation of teachers by colleges and universities, most teachers pay more attention to scientific research than teaching. For teachers of chemistry majors, their main focus is on academic papers and scientific research projects, thus ignoring teaching work, so the integration of curriculum ideology and politics into analytical chemistry experiments has not been implemented^[6].

3. Exploration of Improving the Quality of Ideological and Political Teaching of Analytical Chemistry Experiments

3.1 Ideological and political teaching of experimental courses using blended teaching methods

The key factor in the implementation of ideological and political teaching in analytical chemistry experimental courses is the reform and innovation of ideological and political methods. In order to solve the problem of students’ lack of awareness of experimental teaching, the online+offline mixed teaching method can be adopted. Teachers will discuss the collected ideological and political cases with students on the platform in online classrooms, such as ChaoXing Xuexitong, so that students can express their opinions, not only limited to students’ professional knowledge, but also experience and perception of ideological and political elements, and also integrate current new events and hot issues, cultivate students’ keen insight, and encourage students to analyze current affairs and hot issues in combination with professional knowledge. Give full play to the role of students as the subject of the classroom. This is a way to improve students’ ability to reflect and discuss, so as to achieve the training concept of “excellent engineers” in engineering majors. In the offline teaching of analytical chemistry experiments, it is not only necessary to help students master professional knowledge and operational skills, but also to use the ideological and political elements of the course contained in the experiment to improve the experimental teaching methods, give play to the function of curriculum education, and guide students to establish correct socialist core values. For example, in the course of explaining the analytical chemistry experiment course, teachers can cultivate students’ rigorous and standardized, pragmatic and truth-seeking scientific research attitude through the use of electronic balances, titration operation exercises, etc. In the process of teaching analytical chemistry experiments, it is necessary to dig deeply into the ideological and political elements of green chemistry and sustainable development. Some reagents and drugs that cause great harm to the human body and the environment can be used by wearing masks and protective equipment to avoid harm to the human body. Through experiments, students can correctly understand the harm caused by toxic and harmful substances to the environment and human body, cultivate students’ awareness of environmental protection, let students develop good chemical experiment habits, and lay a good foundation for future work.

3.2 Form a course ideological and political teaching team

The key to the development of “course ideology and politics” lies in college teachers, and ideological and political education

can guide students to establish a correct political direction and political viewpoint. As a chemistry teacher, you must have a certain political stance on imparting knowledge and viewpoints, and set a good example for students through your own words and deeds. First, through the establishment of a comprehensive teacher training and development system, teachers of professional courses are guided to realize that teaching is not only the imparting of professional knowledge, but also the process of educating people in an all-round way. Secondly, at the school level, platforms such as ideological and political teachers' teaching skills competitions are gradually established, and ideological and political teachers' teaching achievements display and exchange activities are held to provide ideological and political teachers with opportunities and platforms for learning exchanges and ability improvement. Finally, set up a course ideological and political teaching team, invite ideological and political professional teachers to join, provide guidance and help for professional teachers, and help them to explore the ideological and political elements hidden in professional knowledge. Through activities such as collective lesson preparation, exchange and seminars, ideological and political classes, special learning and practice, etc., the ideological and political progress of the curriculum is further promoted.

Conclusions

Under the dual requirements of modern education and teaching laws and talent training laws, the integration of ideological and political education into analytical chemistry experimental teaching is to achieve the goal of all-round education, reform and innovate the content of analytical chemistry experimental teaching, and improve the consciousness of "course ideological and political" of analytical chemistry experimental teachers. Realize the unity of skills, knowledge and values taught by analytical chemistry experiments, and cultivate students to establish correct socialist core values, professional quality and social responsibility. It is further proved that the integration of curriculum ideology and politics into the professional curriculum education of analytical chemistry experiment has great application value and far-reaching significance.

References:

- [1] Xi Jinping presided over a symposium for teachers of ideological and political theory courses in schools, emphasizing the use of socialism with Chinese characteristics in the new era to cast the soul and educate people, implement the party's educational policy, and implement the fundamental task of building morality and cultivating people [N], People's Daily, 2019-03-19. (in Chinese)
- [2] Xi Jinping emphasized at the National Conference on Ideological and Political Work in Colleges and Universities: To put ideological and political work through the whole process of education and teaching, and create a new situation for the development of my country's higher education [N], People's Daily, 2016-12-09. (in Chinese)
- [3] Huan Shuangyan, Wang Yuzhi, Cai Chi, Chen Zengping, Tang Lijuan, Lei Chunyang, Liu Jianbo and Li Yongjun, The Design and Thinking of the Concrete Case of Ideological and Political Education in Chemical Analysis Course [J], University Chemistry, 2021, 36(3): 99-105.
- [4] Yan Bingfei, Li Wenzuo, A Preliminary Study on the Integration of "Ideological and Political Theories Teaching in All Courses" into the Teaching Mode of Physical Chemistry Experiment [J], Yunnan Chemical Technology, 2020, 47(2): 182-184. (in Chinese)
- [5] Luo Xiaoqin, Li Na, Research on the current situation and countermeasures of "course ideological and political" construction in colleges and universities [J], Legal system and society, 2019, 5: 192-193. (in Chinese)
- [6] Wang Yingjin, Zhang Ning and Zhao Erlao, Strategies for implementing classroom ideology and politics in analytical chemistry experimental teaching [J], Shandong Chemical Industry, 2019, 15(48): 221-222. (in Chinese)

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