

## Discussion on the Feasibility and Implementation Path of Integrating Ideological and Political Elements into Chemistry Major Courses

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**Abstract:** The chemistry curriculum contains a large amount of Marxist materialistic dialectics and rich philosophy of life. The chemistry major course is a basic course for colleges and universities to cultivate senior specialized personnel engaged in a series of tasks such as research, design, and development in organic chemistry and related fields. This article introduces ideological and political education into the entire process of chemical professional courses, which can not only cultivate high-level and high-tech talents in the field of organic chemistry, but also cultivate high-quality socialist builders and successors that meet the needs of the times. Curriculum Ideology is a process that moistens things silently, and cannot be completed overnight. When conducting curriculum Ideology teaching for chemistry majors, it is necessary to find a good starting point for the construction of curriculum Ideology, implement the concept of "Big Ideology" pattern construction, and implement the educational function of organic chemistry curriculum, in order to truly achieve the fundamental task of establishing morality and cultivating people in universities. This article establishes a diversified curriculum ideological and political evaluation system, and proposes a specific path for integrating ideological and political elements into professional core courses. Finally, it guides students to master corresponding knowledge points through case discussions, while promoting the resilient scientific spirit, exploratory scientific research attitude, and selfless patriotism of chemists, in order to encourage students to inherit the noble character of the older generation of chemists.

### 1. Introduction

Chemistry is a basic discipline of natural science, which is closely related to daily life and plays an important role in various fields of national production. Chemistry course contains a lot of Marxist materialist dialectics and rich philosophy of life. Chemistry major course is a basic course for colleges and universities to train senior professionals engaged in research, design and development of organic chemistry and its related fields. In the process of teaching, teachers guide students to think and solve problems in study, life and work with Marxist materialist viewpoint and scientific way of thinking, establish correct three views, and cultivate students' sense of historical responsibility and mission to serve the society [1]. Since the concept of Curriculum Ideology was put forward in 2014, the integration of a large number of Ideology elements in different professional courses has fully reflected the concept of Curriculum Ideology about the essence of moral education and collaborative education. However, the thinking of Curriculum Ideology is scientific and innovative. Under the influence of the continuous development of society and various ideological trends, we should constantly solve new problems with new ideas, methods and means to realize the innovative development of Curriculum Ideology [2-3].

All colleges and universities are actively carrying out the construction of "Course Ideology", exploring the way of talent training of "combining knowledge imparting with ideological and political education", and striving to build a big pattern of professional courses and Ideology education in the same direction, so that the knowledge of Ideology can penetrate into students' psychology and be practiced in chemistry professional courses [4]. Integrating ideological and political education into the entire process of chemistry curriculum can not only cultivate high-level

and high-tech talents in the field of organic chemistry, but also cultivate high-quality socialist builders and successors who meet the needs of the times. With the increasing demand for high-quality educational resources, people have been entrusted with a new mission to adapt to the requirements of the new era. In this article, a diversified curriculum ideological and political evaluation system has been established. Organic chemistry is an important basic course for pharmaceutical majors, with its unique professional nature. In the process of teaching organic chemistry, it is easy for teachers to downplay or even ignore the function of ideological and political education.

The purpose of offering chemistry courses in universities is to cultivate teachers of basic chemistry education for society, which will play a relay and even lead role in the reform of basic chemistry education. To continuously improve the comprehensive education system, it is necessary to continue to implement the fundamental task of governing the country by virtue, and cultivate socialist builders and successors who develop in an all-round way, morally, intellectually, physically, aesthetically, and industrially. Therefore, teachers should continue to strengthen moral and emotional education for normal school students through diversified curriculum ideology. Finally, the specific path for integrating ideological and political elements into professional core courses is proposed. It is very important to guide the daily learning of chemical normal school students in the development direction of mainstream ideology in the new era through the path content proposed in this article, and vigorously promoting curriculum ideology in diversified chemical professional courses is a realistic need to address the complex and volatile ideological field of today. Finally, guide students to master corresponding knowledge points through case discussions, while promoting the tenacious scientific spirit of chemists, the courageous scientific research attitude, and the patriotic feelings of selfless dedication, to encourage students to inherit the noble character of the older generation of chemists.

## **2. The Dilemma of the Integration of Ideology and Chemistry Courses**

### **2.1. Teachers' awareness is not high**

Biochemistry is a natural science that is constantly developing and updating. With the continuous progress of research technology and methods, many theories and viewpoints in teaching content are constantly being introduced. Teachers' ideological awareness is not high enough, requiring chemistry teachers to combine professional characteristics and expend greater energy in mining and screening relevant Ideology elements. The above objective conditions restrict and affect the in-depth integration of inorganic and analytical chemistry curriculum Ideology with biopharmaceutical majors [7]. Therefore, the history of biochemical development has rich and splendid scientific research historical data, which is the content of the first lesson in the teaching design of biochemical courses. The understanding of Marxism and the theoretical system of socialism with Chinese characteristics is not sufficient. As high-end intellectuals, they are skeptical of Marxism and cannot remain sober and correctly handle major issues of right and wrong, making it easy to set a negative example in front of students and giving them wrong value guidance.

### **2.2. Teachers' resource mining ability is insufficient**

The teachers of chemistry major courses are not clear about many basic concepts such as the principle, method and function of ideological and political education. However, in reality, there is always a lack of unified regulations on the teaching methods, methods and requirements of basic courses in our school, and there is a lack of clear institutional regulations on the quantitative indicators, evaluation standards and coordination mechanisms of various colleges in the implementation process of course ideology [8-9]. The content of the course involves the introduction of biology, energy storage by plant respiration, energy consumption by animal metabolism, molecular biology foundation and application of genetic engineering, etc., with a wide range of contents, covering almost all the core courses of other majors of normal students. Therefore, they lack the ability to tap the ideological and political education materials, and it is

difficult for them to use the professional knowledge of organic chemistry as a vivid ideological and political education resource to design a teaching course that combines explicit and implicit, so that they cannot give students the correct guidance of world observation, outlook on life and values in the process of teaching organic chemistry courses.

### 2.3. Insufficient attention paid by universities

Moreover, chemistry is also an important reference course for postgraduate entrance exams in agricultural and forestry universities. However, at present, various colleges do not attach high importance to basic chemistry courses. Some colleges have changed the nature of chemistry courses from professional basic courses to public courses in talent cultivation programs, and the course hours are also continuously decreasing. However, because organic chemistry is a science discipline, universities pay more attention to the cultivation of their professional abilities and subject skills, so there are certain loopholes in the ideological and political education of students.

### 3. The Feasibility of Implementing "Curriculum Ideology" in Chemistry Major Courses

Although the goal of building a "big ideology" pattern in universities is extremely firm, the integration of organic chemistry courses and ideology courses is limited by many issues such as their disciplinary characteristics, teacher quality, and so on, making it difficult to further promote the current coordinated development. The form of teacher ethics education in normal colleges and universities is relatively simple. Except for a few education majors such as the Department of Education and the Department of Psychology, which attach a little importance to educational theory courses, the implementation of the inclusion of teacher ethics courses in the professional talent training program for normal students in other majors is not satisfactory. "Subject core literacy", as a new concept in senior high school chemistry curriculum teaching, has been grandly introduced, making major adjustments to the expression of curriculum teaching objectives. In senior high school chemistry, "three-dimensional objectives" are no longer mentioned, but teaching objectives are divided into four levels, all based on five aspects of chemical subject core literacy.

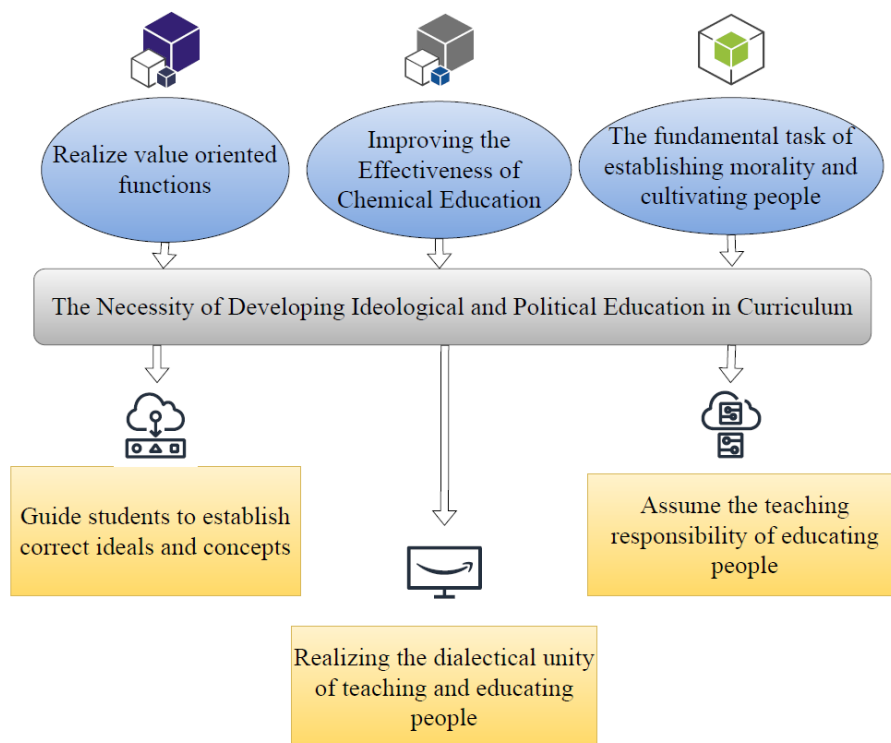


Figure 1 Necessity of carrying out curriculum ideology education for chemistry majors

Ideology education has penetrated into the five aspects of the core literacy of high school chemistry, fully demonstrating the trend of transforming mainstream ideological content into the

common ideals and values of college chemistry teachers and normal chemistry students. Therefore, the cultivation goals that can spread to the attitudes, emotions, values, and other aspects of normal school students provide an opportunity for the integration of Ideology elements from multiple aspects and perspectives [10]. From a macro perspective, to establish the concept of a "big ideology" construction pattern in universities, it is necessary to apply value guidance throughout the entire process and all aspects of the teaching of chemistry majors in universities, forming an effective mechanism for educating and cultivating people in various aspects such as classroom teaching, practice cultivation, and life edification. The necessity of conducting curriculum ideology education for chemistry majors in universities can be analyzed from three aspects, as shown in Figure 1.

Generally speaking, the biochemistry course itself has a high possibility in cultivating the professional quality and humanistic quality of normal students. Large-scale online open courses, micro-courses, micro-reading, subscription numbers, online learning links, etc., almost all education and teaching processes are inseparable from the Internet. Driven by the concept of "internet plus", on the Internet platform, the communication between teachers and students can be more comfortable, the teaching content and means can be richer, and the learning environment can be more personalized.

#### **4. Study on the Feasibility and Implementation Path of Integrating Ideology Elements into Chemistry Curriculum**

##### **4.1. Improving the level of ideological and political theory education of chemistry teachers**

A complete knowledge system is the basis for the infiltration of Ideology into classroom teaching, which of course includes the theoretical level and humanistic quality of Ideology, helping teachers to understand the truth of life and cultivate a rigorous scientific attitude, improving teachers' ability to spread mainstream Ideology, integrating educational objectives with teaching objectives, and clarifying the teaching contents of each chapter and educational requirements in each teaching link, such as scientific spirit, professionalism, dedication, craftsman spirit, professional quality and sense of responsibility, so as to guide the teaching of Ideology. With lofty personality charm and Ideology accomplishment, we should strengthen the sense of social responsibility of normal students and effectively integrate socialist core values into the teaching of professional courses.

As far as the development history of biochemistry is concerned, whether it is the history of theoretical development or the history of technological development, the review of history itself has high educational value, which provides an opportunity for the integration of historical elements of Ideology. Because of the differences in age, education background and knowledge structure, the level of mastering modern educational technology is uneven. Therefore, we can formulate corresponding incentive measures and invite professional and technical personnel to give one-on-one guidance, so as to provide teachers with opportunities to learn from and accelerate the pace of teachers' information-based teaching and learning.

##### **4.2. Establishing a diversified curriculum ideological and political evaluation system**

In the construction of curriculum ideological and political education, it is necessary to conduct an overall design from the level of professional talent training programs, so that various teachers coordinate with each other in various courses, and use the advantages of the curriculum itself to integrate ideological and political elements, which can not only avoid duplication and omissions, but also reflect the unique characteristics of the curriculum from the perspective of ideological and political education. To improve the efficiency of classroom teaching, especially when the class hours of multiple specialized courses for chemistry normal school students are limited, adding "course ideology" should properly allocate the class hours of each specialized course, ensure the reasonable and orderly connection of various major links in the teaching process, so as to ensure the completion of normal teaching tasks. Efforts should be made to strengthen their awareness and

ability of educating people, and timely update their educational concepts and sense of identity. Deeply explore the ideological elements and educational functions contained in the chemistry major curriculum, implement the socialist core values into classroom teaching, and establish morality and cultivate people throughout the entire teaching process. Therefore, this article establishes a diversified ideological and political evaluation system for chemical professional courses, as shown in Figure 2.

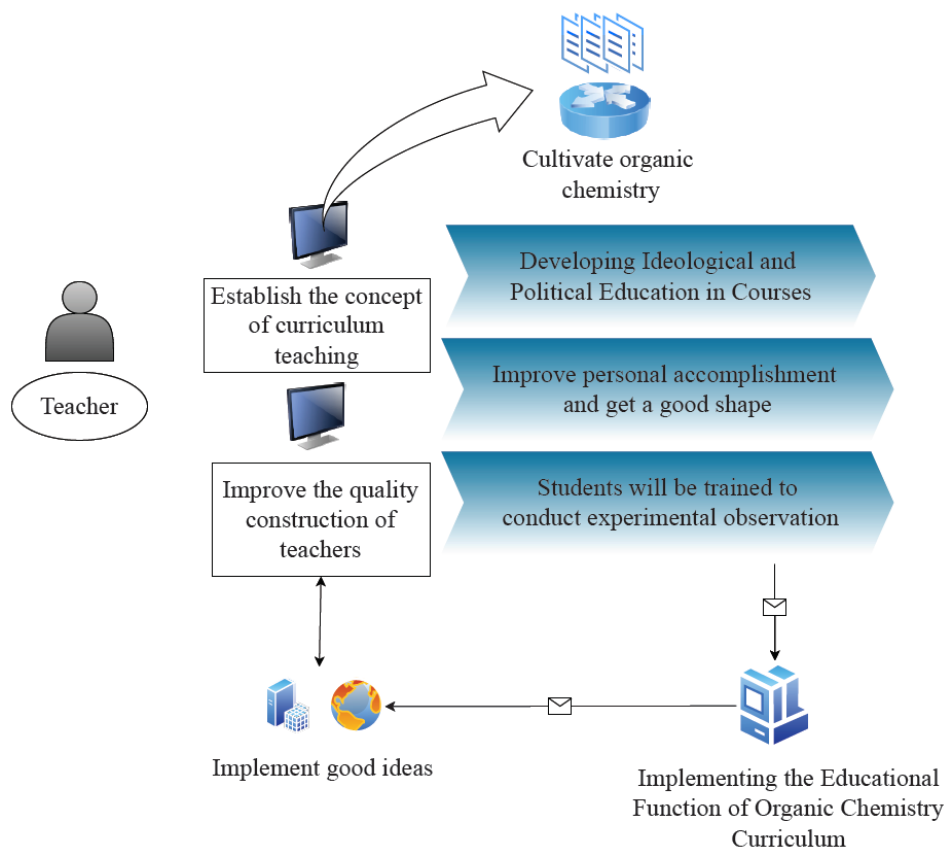


Figure 2 Diversified ideological and political evaluation system of chemistry major courses

After learning the principles of viral infection through biochemistry courses, popular science education activities such as infectious disease prevention can be carried out in the future. These activities encourage normal school students to inspire others to believe in science, disseminate science, establish a correct world view, and integrate other ideological elements. A diversified ideological and political evaluation system for chemical professional courses can cultivate their dedication on the one hand, and enhance their sense of identity and belonging to the teaching profession on the other hand. With the active participation and cooperation of students and the courage to explore, classroom teaching can proceed smoothly and ensure effectiveness. The attractiveness of teaching elements in a diversified ideological and political evaluation system for chemistry majors is a key factor in improving students' enthusiasm. Therefore, how to effectively control the classroom puts forward higher requirements for teachers.

#### 4.3. Establish and improve the teaching evaluation mechanism

In-depth analysis of students' learning needs and psychological characteristics, the establishment and improvement of teaching evaluation mechanism in a subtle way, the production of teaching courseware embodying curriculum Ideology, and the design of teaching cases embodying curriculum Ideology. It is necessary to establish a teaching evaluation mechanism of "Curriculum Ideology" and invite experts and teaching supervisors to give regular guidance to test the implementation effect of curriculum Ideology. Teachers should constantly optimize teaching methods, improve and update teaching content after expert guidance, and finally popularize and apply systematic teaching results. In order to develop the course Ideology in chemistry courses,

colleges and universities must make clear the application process of organic chemistry knowledge, and it should also be the process of implementing Ideology education for students. See Figure 3 for establishing and improving the teaching evaluation mechanism for students with chemistry-related majors.

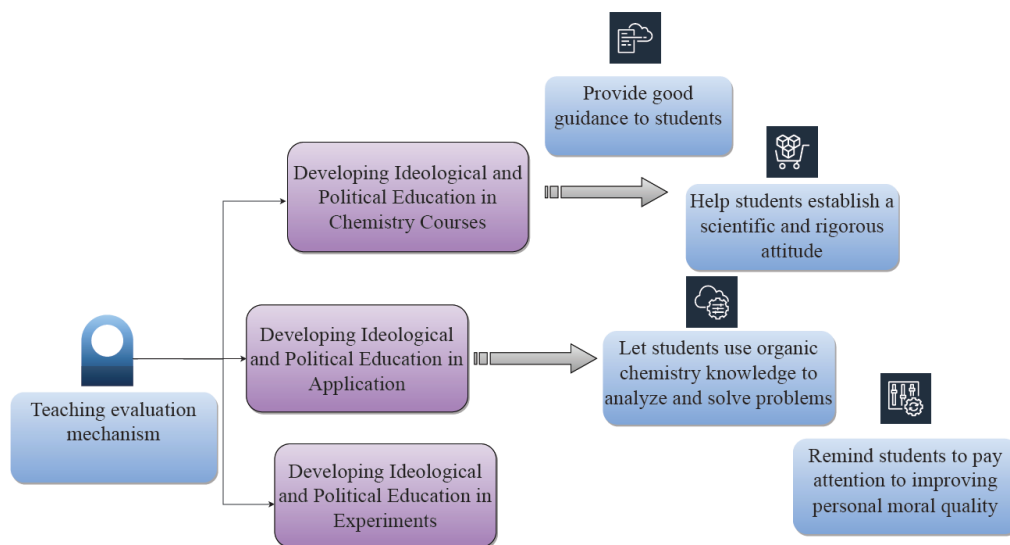


Figure 3 Improving the teaching evaluation mechanism

Since the slogan "Quality oriented education, teacher education first" was proposed, teacher education has always been the focus of national education work. This combination of national needs and personal dedication, as well as the integration of ideological elements, is conducive to the formation of a strong sense of professional identity and responsibility for normal school students. For example, the "High School Chemistry Teaching Design" course adopts an online and offline mixed teaching mode, integrating typical cases of the course Ideology education into classroom teaching. While guiding students to master corresponding knowledge points through case discussions, it promotes the tenacious scientific spirit of chemists, the courageous scientific research attitude, and the patriotic feelings of selfless dedication, to encourage students to inherit the noble character of the older generation of chemists.

## 5. Conclusions

As a professional core course for normal students, the chemical specialty course provides a good carrier for the course Ideology to cultivate the comprehensive quality of normal students. The course content is complex and involves a wide range, which also provides an opportunity for the integration of ideas. Therefore, it is very important to guide the daily study of chemistry normal students with the development direction of mainstream ideology in the new era. When guiding students to carry out related experiments of organic chemistry, the contents of ideological and political education such as scientific attitude and Qi Xin's teamwork ability, which are carefully forbidden in the process of experimental observation, recording, thinking and hands-on, will be integrated into it bit by bit, and the ideological and political education for students will be realized in a subtle way. The course Ideology runs through the whole teaching process to help students shape a correct world outlook, outlook on life and values. This article establishes a diversified curriculum ideological and political evaluation system, and proposes a specific path for integrating ideological and political elements into professional core courses. Finally, it guides students to master corresponding knowledge points through case discussions, while promoting the resilient scientific spirit, exploratory scientific research attitude, and selfless patriotism of chemists, in order to encourage students to inherit the noble character of the older generation of chemists. Integrating ideological and political elements into a diversified curriculum ideological and political evaluation system for chemistry majors, cultivating not only is a good shaping of personal professional and technical professional concepts, but also relates to the transformation and development of

universities in response to the development of the times and social needs, and is also a well-established talent strategy for achieving a strong and prosperous country.

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## References

- [1] Wang L X. Exploration on the Reform of Ideological and Political Teaching of Environmental Chemistry Course[J]. Contemporary Education Research (Baitu), 2021, 005(001):85-98.
- [2] Wang L S. Practice of Integrating Specialized Courses into Ideological/Political Education——Taking "Solid Luminescent Materials" as an Example[J]. Frontier of educational research: Chinese and English versions, 2021, 11(2):5-24.
- [3] Huang Dongmei. Study on the Way of Integrating Curriculum Ideological and Political Teaching into Professional Courses of Higher Vocational Education[J]. Foreign language version: Educational Science, 2022, 48(1):4-18.
- [4] Yong L I, Liu X M. Research on the Construction Path of "Ideological and Political Education in Curriculum" for Specialized Courses in Higher Vocational Colleges ——A Case Study of Computer Application Technology Major[J]. Journal of Hubei Open Vocational College, 2019, 66(20):27-58.
- [5] Li K, Wei K, Wang C. The Exploration of Specialized Courses in Colleges and Universities Education into Ideological and Political to Education[J]. Journal of Chengdu University of Traditional Chinese Medicine(Educational Science Edition), 2022, 61(38):42-57.
- [6] Cui-Xia L I. Exploration of Ideological and Political Education in the University Specialized Courses Teaching of "Inorganic Functional Materials"[J]. Education Teaching Forum, 2022, 41(19):52-64.
- [7] Guo N, Guo-Dong L I, Zuo H L. Study on Reform of Specialized Courses Based on Ideological and Political Education[J]. Education Teaching Forum, 2021, 46(18):24-59.
- [8] Xue P. Exploration on the Path of Teaching Implementation for Ideological and Political Courses in Senior High Schools from the Perspective of Core Literacy[J]. The Science Education Article Collects, 2022, 46(19):36-62.
- [9] Teng C Q. Teaching Experience and Exploration of Ideological and Political Construction in Course of Composite Materials Science[J]. Polymer Bulletin, 2020, 28(17):36-55.
- [10] Xu Q. Research on the Innovative Construction and Implementation Path of Ideological and Political Teaching Mode of Entrepreneurship Education Course in Colleges[J]. Journal of Dali University, 2019, 15(5):31-39.